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THE DANUBE BASIN
PART 2
RUMANIA, BULGARIA, AND YUGOSLAVIA

BY

LOUIS G. MICHAEL

Senior Agricultural Economist, Bureau of Agricultural Economics



UNITED STATES DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

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AGRICULTURAL SURVEYS OF FOREIGN COUNTRIES

Two things of vital importance must be considered in marketing the agricultural surplus of the United States in foreign countries: (1) The demand for each product, and (2) the strength of the competition that must be met. Even in customer countries the local farmers are competing with the farmers of the United States for the markets of the consuming centers. The whole question centers in the disappearance of farm products in relation to production. The disappearance of farm products involves consumption as human food and as feed for livestock; utilization in various industries; use as seed; accumulation as stocks; and waste. Disappearance balanced against production results usually in a deficit that requires an importation or in a surplus that will be available for exportation.

The bulletins of the United States Department of Agriculture dealing with the agricultural surveys of foreign countries contain analyses of the relations between trends (pre-war and post-war) in agricultural production, in disappearance, in importation, and in exportation, together with a concise discussion of the important developments within each country. These analyses and discussions will enable the man who is not a technical expert to follow current developments.

The bulletins of this series already issued or in press are as follows:

Agricultural Survey of Europe:

Germany. (Department Bulletin No. 1399.)

The Danube Basin—Part 1. (Department Bulletin No. 1234.)

The Danube Basin—Part 2. (Technical Bulletin No. 126.)

Switzerland. (Technical Bulletin No. 101.)

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Argentina and Paraguay. (Department Bulletin No. 1409.)

France. (Technical Bulletin No. 37.)

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OCTOBER, 1929

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D. C.

AGRICULTURAL SURVEY OF EUROPE: THE DANUBE BASIN—PART 2, RUMA- NIA, BULGARIA, AND YUGOSLAVIA

By LOUIS G. MICHAEL, *Senior Agricultural Economist, Bureau of Agricultural Economics*¹

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UNITED STATES PENETRATION INTO THE DANUBE BASIN

In the markets of Germany, Czechoslovakia, Austria, the Adriatic ports, and the Orient, wheat, wheat flour, and lard from the United States are now competing with wheat, wheat flour, lard, pork, and pork products from Hungary, Rumania, Yugoslavia, and Bulgaria.

The recent expansion of corn acreage in the south Danube States, the increased shipments of hogs, pork, pork products, and lard up the

¹ With the collaboration of Pauline A. McDonnell, of the Bureau of Agricultural Economics.

Danube, and the projected construction by British interests of packing plants in Bulgaria, with a direct line of steamships to western Europe, center attention on the potential importance of the south Danube corn belt as a hog-producing region. There is little question that the hog industry of the United States must prepare to face increased competition from the lower Danube Basin.

The production of wheat and wheat flour in southeastern Europe was badly crippled by the events of the World War and the disastrous economic situation following the war; by the breaking up of the Austro-Hungarian Empire; and by the sweeping land reforms in which millions of acres formerly operated as large estates passed into the hands of peasant farmers. The former wheat surplus of the south Danube States, which during 1909-1913 averaged more than 110,000,000 bushels,² was reduced to an average of 26,000,000 bushels² during the 5-year period ended 1925-26. During this period American wheat penetrated to the mountainous interior of Rumania, but both American wheat and flour are now being forced back toward north central Europe, for wheat production in the Danube Basin is recuperating, and the milling industry is again struggling to recover its former footing.

The interest of American agriculture in this region is centered on the degree to which the peasant farmers of the Danube Basin can utilize the lands that were formerly operated as large estates to build up exportable surpluses of wheat, corn, rye, barley, and oats, as well as hogs and other animals and animal products.

The present struggle of United States products to maintain a foothold in the natural markets of the surplus-producing districts along the Danube River is but a recent phase of a struggle that has extended over three-quarters of a century.

THE BATTLE OF GRAIN AND HOGS

During the half decade in which the United States was recuperating from the Civil War, Hungary entered the markets of the west and became the granary of Europe, for production in Russia had been previously crippled by the Crimean War. But by 1874 American grain was again flowing across the Atlantic in increasing volume, and for the next 30 years contended with Hungarian grain in central Europe and Russian grain in the west. It also had to meet the rising tide of cereal exports from the south Danube States—Rumania, Bulgaria, and Serbia.

When American wheat and flour appeared at Trieste, the southern gateway of the Austro-Hungarian Monarchy, and at other Adriatic ports, Hungary realized its inability to cope successfully with the situation by marketing wheat as grain. Hungary therefore set out to develop the flour-milling industry which is now centralized in the great mill combines at Budapest. The commercial mills of Hungary soon developed a capacity sufficient to grind all of the wheat produced in Hungary. Then large quantities of wheat and rye were imported from the Balkan States to be ground in bond and thrown upon the markets of the Austrian Empire and central Europe in competition with flour from Minneapolis.

² The combined surplus of Bulgaria, Hungary, Rumania, and Yugoslavia.

The Balkans, seeing the advantage gained by Hungary in exporting flour instead of grain, established their own commercial mills. These southern mills attempted chiefly to satisfy the flour requirements of the Orient. Rumania, Bulgaria, and Serbia each shipped flour south and east to Istanbul (Constantinople) and Salonika. At the same time, large quantities of grain were shipped to western Europe from Rumanian and Bulgarian ports on the Danube and the

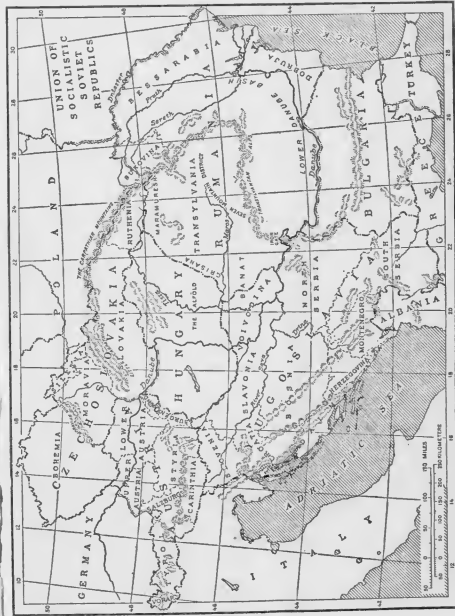


FIGURE 1.—MAP OF THE DANUBE STATES
The Danube Basin, extending from the mouth of the Danube to the Black Sea, is the greater part of the old Danubio. The lowland plains of Hungary, Yugoslavia, Rumania, and Bulgaria are fertile regions that before the World War produced very large surpluses of cereals for export. In addition to exporting grain also shipped hundreds of thousands of cattle and hogs to northwestern European markets.

Black Sea, which greatly augmented the large yearly shipments from Russia.

Hungarian wheat and overseas wheat had practically put the German farmer out of the running by 1881, and on July 21 of that year the first of a series of protective agricultural tariffs was inaugurated which, by 1906, had eliminated Hungarian wheat as a commercial factor from Germany. The United States continued to

ship grain into Germany over the tariff wall, but the landed nobles and great land barons of Hungary, Rumania, and Russia found it increasingly difficult to compete with American-grown grain. The seeders, self-binders, and steam-driven separators of the western farms in America multiplied the power of a single man to many times that of the nonprogressive European farmer, who broadcast seed by hand, harvested his crops with a sickle, and trod out his grain with cattle, as in Biblical times. The eastern peasants have clung to their primitive methods in sharp contrast with the estate owners, who were quick to adopt American and other farm machinery and to change their farm methods in keeping with the principles of experimental science.

Even by the use of modern machinery the Hungarian nobles were unable to compete with the rising flood of grain from North America, Russia, the south Danube, Argentina, India, and Australia. Slowly their grain-marketing operations were forced back to the frontiers of the Austro-Hungarian Monarchy. Such shipments as were made abroad were almost exclusively in the form of a very high-grade wheat flour which was much in demand by the bakers of central Europe. The struggle was for existence. By 1906 it had become so bitter that the dual monarchy, following the examples of Germany and France, passed a tariff act that practically inhibited grain, cattle, and hogs from passing the frontiers of Austria-Hungary.

Between 1850 and 1860, lard from the United States had made its active appearance upon the European markets in such quantities that Hungarian lard prices were cut from 10 to 30 per cent. Hogs from Serbia and Rumania had been marketed in Hungary and Austria from early times, in tens of thousands yearly. In the early nineties Serbia shipped 250,000 hogs up the Danube in a single year. The Austro-Hungarian agricultural tariff dealt a death blow to the Serbian live-hog export and forced the development of the packing industry within Serbia itself.

Before the World War the United States farmer had three powerful groups of competitors in southeastern Europe. The most powerful of these groups was found to the north of the Black Sea in Russia. This group was made up of the nobles and rich landlords, whose broad, well-tilled acres were devoted to the production of export cereals; and of the mushiks, from whose tiny plots of land were wrung dribbles of surpluses whose cumulative amount supplied nearly half of the exported total. The second most powerful group, that of the south Danube States, was made up of the great land barons and impoverished peasantry of Rumania, and the independent peasant farmers of Bulgaria and Serbia. The third group comprised the powerful farming nobles of the former Kingdom of Hungary and a colorful variety of subjugated peasants of diverse nations who were held to the farming policies of the Hapsburgs by the force of the Austro-Hungarian Monarchy.

At the outbreak of the World War the Hungarians had continued their practice of importing Rumanian and Serbian wheat for milling in bond, but only a small part of the surplus that was produced in Serbia and Rumania went up the Danube. The bulk of all surplus cereals produced in Serbia, Bulgaria, and Rumania was shipped to western Europe where it had a very important influence in determining world prices.

Then came the Balkan and the World Wars, followed by Bolshevism in former Russia, the breaking up of the Austro-Hungarian Empire, and the sweeping land reforms in the succession States east of the Alps. The vast grain-surplus-producing estates of former Russia, Rumania, and the subjugated districts of the former Kingdom of Hungary have passed into the beginnings of tradition. Subject peoples, no longer held to specific lines of farming by imperial policies, have reverted more nearly to those customs and habits of agriculture that were traditional to the peculiar ethnic group to which each belonged, and changes have followed as natural consequences, which are of very great significance to the world of agriculture.

During and immediately following the World War, the power to produce was greatly reduced throughout southeastern Europe. United States wheat, flour, and lard flowed into this former competing region through Trieste into Austria and up the Elbe River from Hamburg into Czechoslovakia. North American wheat was milled even in the Rumanian District of Transylvania. American flour and lard from the United States penetrated Dalmatia and Croatia in western Yugoslavia at a time when the eastern districts were exporting grain and hogs up the Danube.

The question today is, How long can the United States maintain its footing in the natural markets of its competitors in the Danube Basin? To what extent can these competitors come back to drive American products out of their own markets and to compete with grain and pork from the United States in the markets of western and central Europe?

In a former publication (22)³ are given the effects of boundary changes upon the agriculture of the four of the six Danube States—residual Hungary, residual Austria, Czechoslovakia, and Yugoslavia, up to the year 1922. The present report covers the agricultural situation of the south Danube States—Rumania and Bulgaria—as well as Yugoslavia, forming a single group of the three similar States.⁴

The agricultural situation in the three south Danube States has been vitally influenced by the boundary changes attending the splitting up of the Turkish Empire and the Austro-Hungarian Monarchy following the Balkan and the World Wars. This takes into consideration the liberation of the subject peoples of Austria and Hungary from the pressure for greater farm production exerted by the agricultural policies of the Dual Monarchy. The farm operations of these peoples have retrogressed toward the ancient customs and habits peculiar to each ethnic group. This is an important factor. Agricultural production is the result of a series of reactions between inherited potentialities of individual seeds and animals and those conditions of the environment in which the individual develops as modified by the hand of man. Success or failure in production depends very largely upon the character of the man. The land reform has had a sweeping effect upon the farm situation in Rumania and a lesser effect upon farming in Bulgaria and northern Yugoslavia.⁵

³ Italic numbers in parentheses refer to "literature cited" p. 182.

⁴ Farming in Yugoslavia is of the same primitive character as that of Rumania and Bulgaria. These three countries are classified as Near-Eastern countries, together with Greece and Turkey. The two latter countries look to the south Danube states for cereals, flour, animals, and animal products with which to cover the deficit in their domestic production.

⁵ In southern Yugoslavia and Bulgaria, where there were almost no large landed proprietors, the land reform produced little, if any, change in agricultural methods or production. Modern methods of farming had been practiced to a very limited extent in these regions.

The land reform has removed millions of acres from the superior farm methods of the large estates and subjected them to the poorer methods of peasant farming.

The net result of these changes has been a general decrease in production per acre. There have been shifts in the relative acreages of the different field crops cultivated and the number of farm animals maintained. There have been changes in domestic consumption.

There has been a great reduction in the surplus of the five chief cereals available for export from these three south Danube States. The wheat surplus dropped from 89,454,000 bushels before the World War to 23,306,000 bushels in 1925-26. The pre-war rye surplus totaled 11,500,000 bushels as against 455,000 bushels in 1925-26. Other contrasts stated in bushels were as follows: Barley, 35,036,000, as against 14,803,000; oats, 24,198,000, as against 2,809,000; and corn 91,581,000 before the World War, as against 66,207,000 bushels in 1926.

Before the World War a portion of these cereal surpluses was shipped by rail, or up the Danube by water, to central Europe, but the great bulk of all exports was shipped by way of the Black Sea to western Europe. It is, therefore, the markets of western Europe that are most vitally affected by the postwar decreases in cereal production.

THE AGRICULTURAL SITUATION IN RUMANIA

Toward the close of the World War, the forces of the Central Powers occupied fully two-thirds of the old Kingdom of Rumania, forcing the Rumanian Army and Government into the short arm of the country between the Carpathian Mountains and the River Pruth. The rest of the country was systematically despoiled when the German armies withdrew, taking with them all available supplies of foodstuffs and most of the means of transportation in sight. The transportation facilities of the old Kingdom, never first-class, passed into an acute crisis, from which the country had not recovered by 1926.⁵ This lack of transportation has affected Rumanian life vitally at almost every point and has been one of the contributing causes of the present depression in the agriculture of the country. Up to 1925, it was impossible to move crops advantageously.

This inability to move the produce of the country itself was keenly felt during the period of food shortage following the World War. Sections of the Kingdom were cut off from the districts of surplus production and were forced to import wheat and flour from North America and Australia. In the first half of 1919 we find Rumania—one of the former great wheat-exporting countries of the world—importing foodstuffs as follows: Wheat, 1,625,000 bushels; wheat flour (in terms of wheat), 6,765,000 bushels; rye, 100,000 bushels; corn and meal (in terms of grain), 600,000 bushels; barley, 20,000 bushels; and oats, 330,000 bushels.

⁵ Before the World War (1912-1914), the old Kingdom had in round numbers 2,200 miles of railway, 24,031 cars, and 888 locomotives. With the acquisition of her new territory, she increased her railway mileage to 7,424, and her cars to more than 90,000. Rumania had 4,500 locomotives, including purchases abroad, in 1924, but this rolling stock was not entirely available for transportation purposes, since a large part of it was out of repair. In 1925, there were 2,000 locomotives, 2,600 passenger cars, 871 mail coaches, and 41,426 freight cars in commission. To handle her traffic situation effectively Rumania should have at least 4,000 locomotives and 100,000 cars. Even before the World War the car capacity was not sufficient to move the grain in the fall, and several thousand cars were rented each year from Germany to be used during the period of concentrating the grain. (26, 1925)

These imports carried the country through 1919 until the new crop was harvested, at which time restrictions amounting to prohibition were placed on exports of foodstuffs. The domestic requirements had to be met first, and only such exports were allowed during the season 1919-20 as furthered the policies of the Government, and then only under special permit. Only about 367 bushels of wheat and 80 barrels of wheat flour were allowed to go out of the country. Of the other cereals, 25,000 bushels of corn were sent to Austria, and 718 short tons of meal and grains were exported to Turkey.

Nor were the food requirements of the old Kingdom the main problem pressing for solution. Bessarabia, Bukovina, and a large section of the former Kingdom of Hungary had been added to the

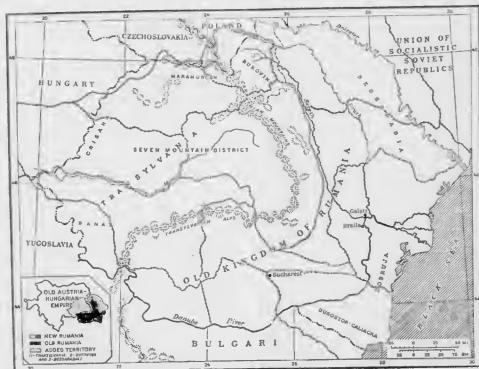


FIGURE 2.—MAP OF RUMANIA

Greater Rumania comprises the old Kingdom of Rumania, Bessarabia (acquired from Russia), Transylvania (acquired from Hungary), and Bukovina (acquired from Austria). Before the World War Rumania was one of the great wheat-producing and wheat-exporting regions of Europe. Following the sweeping land reform initiated in 1919, production of wheat has not regained its pre-war magnitude, and exportation of this cereal is only a fraction of the amount shipped abroad before the World War. On the other hand, livestock production, particularly the production of sheep, has increased above its pre-war importance.

old Kingdom to form the "ethnic unit" of greater Rumania. The administrative staffs of the Austrian and Hungarian Governments had been withdrawn at the time of ceding their territories, and in Bessarabia the Bolshevik uprising had caused former official circles to vanish. The Bucharest Government was faced with the problem of organizing this newly formed Kingdom, more than twice the size of the former one, with the restricted machinery of the old Kingdom, hastily augmented with such local talent as could be induced to come to the aid of the State. These locally selected officials had little or no experience with governmental affairs, having been kept out of participation in civil matters to a large degree by the former ruling powers.

The situation was complicated by budget difficulties. Before funds could be raised by direct taxation the Bucharest Government had to unify four distinct systems of appraisal; the Rumanian, the Austrian, the Hungarian, and the Russian. This, however, was practically accomplished by 1923, in which year the budget was successfully balanced, with a margin on the credit side.

The present Kingdom of Rumania has vast resources of timber, oil, and mineral wealth, in addition to the agricultural production of rich soils. It was therefore but natural to expect that Rumania would be the first of the succession States to recover from the effects of the World War. But the difficulties of administration and finance, coupled with the breakdown of transportation and communication and the falling off in production following the land reform, have deferred the fulfilment of these hopes several years. It was not until 1923 that the value of exports exceeded that of imports and a favorable balance was established in international trade.

Before the World War cereals and cereal products had constituted the bulk of the exports from the old Kingdom of Rumania. The territories acquired from Russia and those ceded by Hungary had also produced large exportable surpluses of wheat, rye, barley, oats, and corn. The Bucharest Government and those interested in Rumanian affairs were confident that the acquisition of these territories would place large surpluses of cereals at the disposition of exporters in quantities that would at least approximate the customary pre-war surpluses, indicated in Table 1.

TABLE 1.—Cereals: Production and net exports of the old Kingdom of Rumania, as compared with those of greater Rumania; average, 1909-1913 and annual, 1925

Cereal	Old Kingdom of Rumania			Greater Rumania					
	1909-1913			1909-1913			1925		
	Net production	Net exports	Percentage of production exported	Approximate net production	Approximate surplus	Percentage of production exported	Net production	Net exports	Percentage of production exported
	1,000 bushels	1,000 bushels	Per cent	1,000 bushels	1,000 bushels	Per cent	1,000 bushels	1,000 bushels	Per cent
Wheat.....	75,529	34,434	72.1	131,535	71,222	54.1	83,291	9,793	11.8
Rye.....	8,821	2,967	77.6	16,879	8,379	49.6	6,280	120	1.9
Barley.....	21,307	16,741	78.6	56,595	32,324	57.1	36,374	12,616	34.7
Oats.....	25,345	19,421	41.1	55,361	18,428	33.3	30,324	1,720	4.3
Corn.....	99,142	38,729	39.1	191,773	64,966	33.9	159,070	22,810	14.3

From tables in succeeding text.

This confidence was shattered by the events following the sweeping land reform inaugurated in 1918, which involved the transfer of nearly 15,000,000 acres from the well-ordered management of large-estate conditions into the hands of peasants, who were not fitted, either by training or habit, to produce the former yields and who did not possess the capital requisite to the proper cultivation of the soil.

The grain situation in Rumania became so serious, after the land reform came into effect, that numerous laws were enacted to foster

production, to control trade, and to obtain a revenue from exports. These laws have had a pronounced depressing effect upon agricultural production and have accentuated the initial depressing influence of the land reform itself.

In 1920 the exportation of wheat from Rumania was negligible. In March of that year a law went into effect which declared all cereals and their derivatives immobilized throughout greater Rumania. Quantities up to 1 ton only were permitted to be sold at any one transaction for food or seed, and owners were obliged to report the quantities of each cereal they had on hand. On April 8 these restrictions were removed from corn, barley, and oats, but wheat and rye remained immobilized. During the late summer and fall the wheat and rye restrictions were temporarily removed, in order to stimulate fall seeding, but were again made effective in December. In the second half of 1920 the small movement of grain abroad was restricted almost exclusively to barley, oats, and corn.

The Government, alarmed at the small acreage of wheat harvested in 1920, not only removed the restrictions imposed in March but also promised free export possibilities in 1921. In the fall there was a material increase in the seeding of wheat, and in the spring of 1921 there was an increased seeding of all cereals.

In 1921 the Government created a monopoly for the export of wheat and rye and to assure a supply of export grain, resorted to the requisitioning of wheat at maximum prices. Corn, barley, and oats were permitted to be exported only after the exporters had delivered to the Government purchasing commission half the available exportable surplus of these cereals in their possession.

The Bratianu Government, upon coming into power in 1922, replaced these varied regulatory measures by a system of export taxes payable in so-called "strong currencies"—that is, currencies of financially sound countries like the United States and Great Britain. The prohibition of the exportation of certain cereals was not altogether abandoned, but was employed only as a temporary measure when the domestic production was insufficient to satisfy internal needs or when exports were in excess of the available surplus.

The export rates and regulations were so onerous that, although production of wheat increased more than 13,000,000 bushels over 1921, net exportation fell to 1,593,000 bushels during the year ended July 31, 1922.

Lack of volume in exports defeated the purpose of the Government to secure revenues, and on November 24, 1923, the export of wheat and rye as a Government monopoly was abandoned, and private trade was reinstituted. The immediate effect was the export of about five times as much wheat and rye in December as during the 11 preceding months.

With the liberation of trade at the end of 1923 the exportation of wheat continued rapidly into 1924. This was the poorest crop year since 1920, and although export of bread cereals was prohibited as soon as it was evident that there would be a crop shortage, a net export of nearly 9,000,000 bushels of wheat was sent abroad before the new crop came on the market.

The total export of wheat for the calendar year 1925 was 1,500,000 bushels. The generally low level of cereal exports during 1925 brought forcibly to the attention of the Government the urgent

necessity of stimulating sales of Rumanian products abroad in order to stabilize the exchange value of the Rumanian leu.

In March, 1926, a reduction was made in the export taxes on grain⁷ and during the following May the surtax of 30 per cent on the freight rates of grain destined for export was abrogated.

The effect of these ameliorations on wheat exports, which increased rapidly during April and the months following, is indicated in Table 2.

TABLE 2.—Cereals: Exports from Rumania, by months, August, 1924, to July, 1926
[In thousands of bushels—1 a, 000 omitted]

Month	Wheat		Wheat flour ¹		Rye		Corn		Barley	
	1924-25	1925-26	1924-25	1925-26	1924-25	1925-26	1924-25	1925-26	1924-25	1925-26
August.....	761	43	498	15	(9)	0	(9)	643	(9)	1,379
September.....	13	111	512	91	(9)	0	(9)	558	(9)	1,354
October.....	13	5	601	123	(9)	0	(9)	374	(9)	823
November.....	0	(9)	261	19	(9)	0	(9)	2,757	(9)	1,349
December.....	(9)	34	189	(9)	(9)	0	(9)	2,720	(9)	1,937
January.....	(9)	9	518	169	14	(9)	2,862	2,316	305	1,071
February.....	(9)	3	0	272	10	0	2,869	1,259	272	786
March.....	(9)	15	0	510	1	0	1,712	1,349	171	442
April.....	(9)	720	(9)	380	0	17	1,557	1,804	0	1,572
May.....	(9)	2,962	(9)	47	2,638	2,638	2,638	2,638	11	791
June.....	(9)	1,893	15	972	0	35	2,734	2,639	234	607
July.....	0	1,110	125	487	0	71	1,224	2,396	337	288

August-December, 1924 (18, [c] 16).

January-December, 1925 (35).

January-July, 1926, from report dated Dec. 8, 1926, from Ely E. Palmer, Consul General in charge, Bucharest, Rumania.

¹ In terms of grain.

² Not available.

³ Less than 500 bushels.

This outline statement of Rumania's grain trade since the World War pertains chiefly to restrictions upon the sale and export of wheat and rye. There can be no doubt that these restrictions have tended to diminish the favor with which the farmers looked upon wheat and rye production as contrasted with the production of barley, corn, and oats. On the other hand, the general level of all cereal production in Rumania has been lowered; consequently the exportable surpluses of wheat, barley, oats, corn, and rye are far below those of the period 1909-1913.

Rumanian cereal export had formerly been the chief item in the international trade balance of the country. The sale of cereals upon the European markets in exchange for the currencies of the various customer countries was, before the World War, the strongest factor in building up the financial standing of the Nation. The effect of the enormous shortages in exportable cereals upon the Rumanian financial situation has been all but disastrous. Many contributing causes have been associated with this export situation, but the main factor involved is the land reform.

It is generally conceded, after seven years under the reform system of farming, that the rate of seeding has more or less reached its new levels and that decreased production is an evident fact. Although a portion of this decrease is attributable to unfavorable weather, the main reason is the inability of the peasants to employ modern methods

⁷ The export tax on wheat was reduced from 30,000 to 18,000 lei, on barley and corn from 12,000 to 10,000 lei, and on oats from 20,000 to 10,000 lei. These rates apply to carload lots of 10 metric tons or 22,046 pounds. During the month of March, 1926, the average exchange value of 1 lei was 0.42 cent (par value before the war was 19.3 cents).

of sowing, cultivation, and harvesting. They do not fully realize the advantage to be derived from using improved varieties of seed.

The grain crops, being the main source of Rumania's wealth, it would appear that some drastic steps will sooner or later have to be taken with a view to training the peasants in modern methods of agriculture and, if necessary, assisting them to procure up-to-date implements and selected seed (14, p. 28).

The nature of land tenure, the lack of even primary education on the part of a large percentage of the peasants, and the persistence of ancient customs and habits in peasant agricultural operations make any radical change in the present agricultural situation extremely difficult. It is probable that the present retrogressive state of Rumania's agriculture will continue for many years to come.

LOCATION AND EXTENT OF RUMANIA

The old Kingdom of Rumania comprised the geographical divisions of Moldavia, Wallachia, and Dobruja. In 1912 it had an area of 50,260 square miles,² which is slightly larger than that of the State of North Carolina.

The old Kingdom lies between the forty-third and forty-ninth parallels of north latitude (or about the same distance from the Equator as North Dakota and South Dakota) and between the twenty-second and thirtieth meridians of east longitude. It is bounded on the north and west by the Transylvanian Alps and the Carpathian Mountains, on the south by the Danube River and Bulgaria, and on the east by the River Pruth and the Black Sea.

From the highlands of the Carpathian Mountains the terrain slopes to the east and south through the rolling hill country of the Sereth and the Pruth Valleys; whereas from the highlands of the Transylvanian Alps the country drops abruptly to the level plains of the lower Danube Basin. The mountainous regions are well covered with forests, interspersed with pastures and meadowlands. These mountainous and hill districts are so densely populated that all land that can be productively cultivated is put into field crops.

Between the Sereth and the Pruth Rivers the country is characterized by broad low plateaus and fairly level or gently sloping river valleys. Formerly great estates occupied these plateaus and valleys, whereas the peasants' meager holdings were crowded upon the hill sides in the form of long, narrow strips of land connecting the rich fields above with the more fertile soils below.

From the banks of the Danube River a broad, level, sparsely populated plain stretches away to the north to the foothills of the Transylvanian Alps. This was the chief cereal-surplus region of the old Kingdom. Between the Danube River and the Black Sea stretches another fertile plain, the Dobruja.

There were 84 departments in the old Kingdom of Rumania, and before the war 82 of these departments produced greater or less surpluses of wheat.

The climate of the old Kingdom of Rumania is strictly continental. According to records taken before the World War, rainfall, which is

² By the treaty of Bucharest on Aug. 7, 1913, Bulgaria ceded to Rumania the departments later named Danube and Călărași, now constituting south Dobruja, with an area of 2,983 square miles, according to Rumanian statistics, and 2,971 square miles, according to *Annuaire Statistique du Royaume de Bulgarie*, 1925-26. This places the total area of Rumania at the outbreak of the World War at between 53,213 and 55,243 square miles.

well distributed throughout the year, averaged about 23.5 inches. This, coupled with the fact that the soil of most of the departments is a rich, deep loess, similar to that of Iowa and Illinois, particularly adapts the whole region to winter-wheat production. The years 1912 and 1922 were unusual, but, excepting in these two years, the ranges in precipitation during the pre-war and post-war years have been about the same.

The lands under plow during 1909-1913 averaged 44.3 per cent of the total area of the country. The percentage of productive land, including forests, meadows, and pastures was 86.4 per cent.

Before the World War the old Kingdom of Rumania was, in proportion to its net production, one of the heaviest cereal-exporting countries in the world. During the five years ended 1913, Rumania exported an average of 72.1 per cent of its wheat crop, 77.6 per cent of its rye, 78.6 per cent of its barley, 41.1 per cent of its oats, and 39.1 per cent of its corn. It was thus no inconsiderable competitor of the United States in the grain markets of western Europe.

By the treaty of Trianon, Rumania acquired to the north the former Austrian Province of Bukovina and obtained from Hungary the region of "Seven-Mountains" (also called Transylvania) and parts of Maramuresh, Crisana, and the Banat. In the organization of Greater Rumania, all of these former Hungarian Provinces have been combined to form a single administrative district, to which has been given the name Transylvania.

The Seven Mountain district is heavily wooded, 38.4 per cent of its area having been under forests in 1913, whereas only 27.4 per cent was under plow. Natural meadows and pastures constituted 28.4 per cent of the total area, so that grazing and animal industry are naturally important branches of the agriculture of this region. This is an industrial region, with lumbering, mining, and some manufacturing as the leading occupations. Agriculture occupied a subordinate position before the World War on account of the mountainous and wooded character of the country.

The topography of the region, including "Seven Mountain district," Maramuresh, and Satmar to the north, may be likened to a handleless scoop with the open end toward the west. The Carpathian Mountains form the northern and eastern rim, which is continued on the south by the Transylvanian Alps. The floor of this scoop, a plateau averaging from 1,000 to 1,600 feet in altitude, is much broken by mountain peaks and canyons interspersed with fertile valleys and a central plain. The Maros, Olt, Szamos, and other rivers that drain the central plateau, flow into the Danube or into its tributary, the Tisza. The region as a whole is one of deficit-cereal production.

At the mouth of the "scoop" lie the agriculturally rich districts of Crisana and Temish-Torontal (central Banat).⁹ These districts which lie on the eastern margin of the Alföld, the great Hungarian plain, produced large surpluses of all agricultural products before the World War. The eastern part of the Banat, called Caras Severin, is similar in character to the Seven Mountain district and Maramuresh.

The present administrative district of Transylvania, which includes all of these former Hungarian territories, is a portion of the upper

Danube Basin and has a climate which is more closely associated with that of Hungary than with that of the old Kingdom of Rumania. On the whole, before the war, the present district of Transylvania produced an appreciable surplus of each of the four cereals—rye, wheat, oats, and corn. Barley, equivalent to 31.4 per cent of the net production, had to be imported each year. On the other hand, after satisfying the requirements of the Seven Mountain district and of Maramuresh and Carash Severin, the production of Crisana and Temish-Torontal would have been sufficient to supply an exportable surplus of rye equivalent to 20.2 per cent of the net production of the entire administrative district. In similar comparison, the exportable surplus of wheat was equivalent to 17.4 per cent; oats, 15.4 per cent; and corn, 3.1 per cent of the net production.

The Bukovina (the woodlands) contained before the war 43.2 per cent of forest lands as contrasted with 30 per cent of the total area under plow. The farm lands are located in the eastern part of the Province in the valleys of the Pruth, the Sereth, and Dniester Rivers. Rainfall averaged about 25 inches. Before the World War this territory produced a surplus of oats equivalent to 87.2 per cent of its net production and a surplus of rye equivalent to 21.1 per cent. On the other hand, rather large shipments of corn and barley were required to balance local deficits, whereas the wheat deficit was more than twice as great as local production.

Bessarabia, annexed by Rumania from Russia in 1920¹⁰ forms the western extremity of the Russian steppe to which it is similar in characteristics of soil and climate. It is a narrow territory between the rivers Pruth and Dniester, extending from Bukovina to the Black Sea. In the northern part rainfall is considerable, 24.5 inches, diminishing toward the south until in Cetatea Alba it averages only about 10.3 inches annually. The Province is highly agricultural, 61.8 per cent of its area having been under plow before the World War. Its broad fertile plateaus and rolling plains are little broken by woods or pastures. On an average, only 5.7 per cent of the area was under standing timber and 13.5 per cent was grazing lands during 1909-1913. This was a region of surplus production from which about 53.8 per cent of the wheat, 62.9 per cent of the rye, 67.7 per cent of the barley, 28.1 per cent of the oats, and 72.1 per cent of the corn found its way annually into external commerce.

The total area of Greater Rumania is 113,900 square miles, or about the size of the State of Arizona. Greater Rumania is more than double the size of the old Kingdom of Rumania. Not only that, and what is more significant, the areas which can be seeded to field crops are more than twice as great as the areas that formerly produced the great exportable surpluses of cereals of the old Kingdom. (Table 3.)

¹⁰ The question of Bessarabia has been for many years a matter of contention between Rumania and the Union of Socialist Soviet Republics. . . . A treaty providing for Rumanian suzerainty over Bessarabia was signed after prolonged negotiations on Oct. 28, 1920, by France, England, Italy, and Rumania, and later by representatives of Japan and the British Dominions. This treaty as to cession of Bessarabia was not signed by representatives of the United States (45, p. 4).

⁹ Hungary ceded the western portion of the Banat to Yugoslavia.

TABLE 3.—Utilization of land in the districts of present Rumania before the World War, in 1924, and in 1925

Utilization	Old Kingdom of Rumania ¹	Durotor and Calimera ²	Transylvania ³	Bessarabia ⁴	Bukovina ⁵	Greater Rumania					
						Before the War		1924 ⁶		1925 ⁷	
						Total	Per cent of total	Total	Per cent of total	Total	Per cent of total
Plowland:	1,000	1,000	1,000	1,000	1,000	1,000	Per cent	1,000	Per cent	1,000	Per cent
Cereals	12,381	683	6,332	6,901	140	26,141	81.0	25,293	87.0	25,875	85.3
Leguminous plants	132	60	15	46	36	289	.9	283	1.0	286	1.3
Industrial plants	283	3	81	128	20	535	1.6	528	1.8	523	2.7
Roots, tubers, etc.	61	(7)	264	59	115	529	1.6	559	2.1	618	2.0
Vegetables	60	15	(9)	—	1	76	.2	236	.8	227	.8
Forage plants	401	54	668	81	103	1,307	4.1	1,265	4.4	1,412	4.7
Other plants	—	—	73	—	—	73	.2	—	—	—	—
Fallow	11,514	1,280	1,111	1,419	18	3,342	10.4	848	2.9	968	3.2
Total	15,034	1,065	8,581	6,785	733	32,268	100.0	28,989	100.0	30,318	100.0
All land:	15,034	1,065	8,581	6,785	733	32,268	44.5	28,989	36.8	30,318	41.6
Plowland	15,034	1,065	8,581	6,785	733	32,268	100.0	28,989	100.0	30,318	100.0
Meadows	180	12	1,388	186	11	2,298	4.3	2,106	4.8	2,614	8.6
Pastures	2,914	190	3,166	1,207	319	7,806	10.8	7,062	9.7	7,058	9.7
Gardens and orchards	180	(7)	311	(7)	20	711	1.0	596	.8	655	.9
Vineyards	216	6	879	45	10	340	.5	403	.8	627	.9
Forests	5,640	1,386	8,848	626	115	16,518	23.1	17,894	24.6	17,894	24.6
Unproductive and not otherwise classified	7,203	22	662	2,038	27	9,952	13.6	14,214	19.5	12,637	17.3
Total, all land	32,167	1,505	25,235	10,977	2,580	72,668	100.0	72,868	100.0	72,868	100.0

¹ 1909-1913 average. From (31) except where noted.² 1909-1912 average. Calculated from (9) except where noted.³ 1909-1913 average. Calculated from (15) except where noted.⁴ 1909-1913 average. (28, pp. 11, 12).⁵ 1909-1913 average. Calculated from (1), except where noted.⁶ (26, pp. 38-39).⁷ (33, p. 11).⁸ (30, Ann. 10, p. 16).⁹ Less than 500 acres.¹⁰ Included with other plants.¹¹ Adjusted to balance total plowland; includes other plants not separately stated.¹² Estimated by assuming that meadows and pastures are the same proportion to forests as in the Seven Mountain district, as given in (15, 1913).¹³ (27, 1921, p. 69).¹⁴ Estimated by assuming that pastures are in the same proportion to forests as in total Bulgaria (5, Ann. 4, p. 127).¹⁵ Estimated.¹⁶ Estimated by assuming that "gardens and orchards," and "vineyards" are in the same proportion to plowland as in the Seven Mountain district.¹⁷ Included in "not otherwise classified."¹⁸ For 1908 only. Calculated from (5, Ann. 4, p. 178).¹⁹ For 1912 only. Calculated from (5, 1914, 20, pp. 154-156).²⁰ Adjusted to balance total.²¹ (36, 1924). Annuaire Statistique du Royaume de Bulgarie (5) gives 1,901,000 acres.

UTILIZATION OF LAND

Greater Rumania is not only an agricultural State but is a country particularly well adapted to cereal production; 88 per cent of the plowlands were seeded to food and fodder crops before the World War, and 94.1 per cent in 1925.¹¹

¹¹ Table 3 shows that the 1925 area classified as plowlands is 1,950,000 acres less than that before the war and that fallow lands are 2,374,000 acres less. These differences are undoubtedly attributable, to a large degree, to the fact that the present statistical organization classifies fallow land somewhat differently than did the former Hungarian, Austrian, and Russian organizations. Increases in unproductive land and forests as well as decreases in meadows and pastures may be accounted for in the same manner.

There were 29,350,000 acres reported to be under field crops in 1925, as compared with 28,926,000 before the World War. However, other field crops had encroached somewhat upon cereal areas which, in 1925, were about 266,000 acres lower than the 1909-1913 average.

Contrasting the pre-war conditions of Greater Rumania with those of the old Kingdom it is seen that in the old Kingdom 46.7 per cent of the total area was plowland, whereas in the territories comprising Greater Rumania approximately 44.3 per cent of the total area, on the average, was under the plow before the World War. The average pre-war areas of meadows, pastures, and forests were over three times as great within the boundaries of Greater Rumania as within the boundaries of the old Kingdom.

As far as soil and other natural conditions are concerned, the agricultural potentialities of greater Rumania are more than double those of the old Kingdom.

The loss of life during the World War fell heavily upon the male farm population, and it is probable that in Rumania, as in other lands, the cities have recovered their population at a more rapid rate than have the rural communities and that, as in France, there has been a drift away from the farm, with a somewhat greater percentage of the total population living in cities than was the case before the war.

POPULATION

In the old Kingdom of Rumania, before the World War, 82.8 per cent of the population lived in small rural communities, whereas 17.2 per cent lived in cities. As indicated in Table 4, the percentage of urban population in Greater Rumania in 1923 was probably considerably greater than was the case in the same territory before the World War, and greater than in the old Kingdom. This fact signifies that the proportion of bread consumers to bread producers has been considerably increased.

TABLE 4.—Population in the old Kingdom of Rumania and in the acquired territories before the World War and in Greater Rumania, 1923

PRE-WAR POPULATION

Region	Year	Urban	Rural	Total	Percentage urban
Old Kingdom of Rumania	1909-1913	Number	Number	Number	Per cent
	1910	1,221,221	5,878,903	7,100,124	17.2
	1911	678,423	4,570,099	5,248,522	12.9
	1912	346,138	2,144,062	2,490,200	13.9
Bessarabia	1910	176,256	628,566	804,822	21.9
	1911	51,009	229,261	280,270	18.2
Durotor and Calimera					
Total Greater Rumania		2,473,047	13,450,891	15,923,938	15.6

¹ Total population (36, 1924, p. 10). Urban and rural population estimated by taking the same percentage of total as that given for 1910 in (36, 1924, p. 23).

² (36, 1924, p. 27).³ Local population from Yurekai (33, pt. I, p. 63). Urban and rural population estimated by taking the same percentage of total as that given for 1908 in (36, 1924, p. 26).⁴ Total population (36, 1924, p. 12). Urban and rural estimated by taking the same percentage of total as that given for 1910 (36, 1924, p. 14).⁵ Total population calculated from (8). Urban and rural estimated by taking the same percentage of total as that given for 1915 in (36, 1924, p. 14).

TABLE 4.—Population in the old Kingdom of Rumania and in the acquired territories before the World War and in Greater Rumania, 1923—Continued

Region	Year	POST-WAR POPULATION			Percent- age urban
		Urban	Rural	Total	
		Number	Number	Number	Per cent
Old Kingdom of Rumania.....	1922	1,521,094	5,474,192	6,995,286	21.6
Transylvania.....	1922	1,011,519	4,474,530	5,486,049	18.4
Bessarabia.....	1923	452,733	2,578,325	3,031,058	14.4
Bukovina.....	1923	178,408	663,567	841,975	21.2
Durostor and Calicra.....	(1)				
Total Greater Rumania.....	1922	3,543,851	13,102,432	16,736,283	21.2

¹ Latest estimate for Bucharest is 800,000 for 1922, as given in (36, 1924, p. 17); other cities for 1912 and 1915, as given in (36, 1925, p. 18), 1,121,064.

² By difference.

³ Total population of Greater Rumania, 1923, as given in (36, 1924, p. 10) less sum of estimated populations in the other three departments.

⁴ (36, 1925, p. 17).

⁵ Population in 1922 from (36, 1925, p. 16), plus excess of births over deaths in 1923; rural 50,573, urban 3,549, from (37, p. 72).

⁶ Population for 1919 from (36, 1925, p. 15), plus excess births over deaths during 1920 to 1923; rural 27,382, urban 3,872, as given in (37, p. 72).

⁷ Included in the old Kingdom of Rumania.

There were 86 cities in the old Kingdom of Rumania. The metropolis was Bucharest with 347,933¹² inhabitants, according to the official census of 1915. There were 10 other cities in the old Kingdom with populations of over 25,000 each. The metropolis of Bessarabia is Chisinau, with a population in 1922 of 133,000; that of Transylvania is Cluj, with a population of 105,000 in 1923. In Bukovina there was only one large city, Cernauti, with 91,852 inhabitants in 1919. There were 5 cities in Bessarabia and 9 cities in Transylvania (other than the capitals) each with more than 25,000 inhabitants in 1922 and 1923.

The nonagricultural population was found for the most part in the oil districts, in the forest regions, at mines, at certain manufacturing centers, and in the large cities. Even on the outskirts of large cities a considerable number of farmers had their homes and went out long distances to work their fields. In some of the departments of Bessarabia and the other acquired territories a considerable portion of the population of towns as large as 30,000 is directly engaged in field-crop cultivation.

It therefore is not possible to make a classification of the population of Rumania into agricultural and nonagricultural, on the basis of the size of the community in which they live. Since it is probable that more farming peasants live in large towns than nonfarmers in small communities, it is safe to estimate that more than 80 per cent of the population of Greater Rumania is directly engaged in agriculture.

THE FARMING PEASANTS

When slavery became prevalent in the Italian Peninsula in the early centuries of the Christian Era, the native farmers, unable to compete with slave labor, migrated to the towns or sought new homes in the virgin regions on the outskirts of the Roman Empire. Large colonies of these Roman farmers settled in the valley of the Danube, where they intermingled with the local Dacian and other tribes.

¹² The probable population of Bucharest in 1922 has been estimated at 800,000. (36, 1924.)

The ancient Province occupied by this mixture of Romans and Dacians included much of the present administrative district of Transylvania north of the Transylvanian Mountains, crossed the Carpathians, and extended east to the Dniester River. The ruins of the old wall built by the Emperor Trajan to keep back the barbaric hords of the Russian Steppe runs diagonally across southern Bessarabia to the river Pruth. The colonists had always been harassed by the nomads on the east, who pressed them up into the Carpathian foothills at the downfall of the Roman Empire.

With the coming of the Magyars in the ninth century the Roman-Dacians were forced up into the highlands to the north of the Transylvanian Alps and west of the Carpathians, and this region remained under Magyar rule for more than a thousand years. In the thirteenth and fourteenth centuries Rumanian princes with adventurous bands emerged from their mountain retreats and battled their way eastward and southward against the steppe nomads until they finally established the independent principalities of Moldavia, Oltenia, and Munteniei. With the coming of the Turks they were again driven up into the southern slopes of the Transylvanian Alps.

For these reasons the mountainous districts of Rumania are densely populated, whereas in the plains regions the population is comparatively sparse. Under conditions of almost constant warfare for centuries it was difficult to cultivate the plains regions along the Danube, which were given over largely to grazing in the intermittent times of peace. Agriculture of any kind was possible only under the protection of some war lord.

The peasantry of Greater Rumania is thus made up of the descendants of those who during past ages had been the fighting men collected around one or another of the great overlords or voivodes. In return for his protection to their families, these common men were accustomed to place themselves at the overlord's disposal in times of war. In times of peace the fighting farmers tilled the soil; but since such times of peace were infrequent, most of the farm work fell to the lot of the women and children, and this has remained a characteristic of present-day conditions in Rumanian agriculture. In return for his protection the overlord received a share—often the greater share—of all farm products grown within the domains over which he had jurisdiction.

From time to time, according to the fortunes of war, the overlords were destroyed, or they changed their allegiance and intermarried with conquering races, so that at the outbreak of the World War the blood of the nobility was different from and often alien to that of the local peasantry.¹³ As time went on, these workers' families became more or less attached to the soil as the serfs of one or another of the great domains. A few of them acquired small plots of ground, but the greater number were practically slaves.

About 1864 the serfs of most southeastern European countries were freed, and each estate owner was obliged to place a certain area of land at the disposal of his peasants. Naturally he retained the best fields for his own use and turned over to his peasants the poorest lands that they could be induced to accept.

¹³ At the opening of the World War the overlords of the old Kingdom of Rumania were a mixture of Rumanian and several other races; in Transylvania they were largely Hungarians; in Bukovina they were largely Austrians; and in Bessarabia they were Russian, Polish, and Rumanian.

VILLAGES AND ESTATES

Almost without exception the farming peasants of Greater Rumania live in village communities. Each of these communities consists of a large or small group of huts, usually situated in a ravine in proximity to water. The fields of the peasants are usually located at a considerable distance from the village, which lies in broken ground surrounded by the pasture lands, held as common village property. The fields belonging to any one peasant are seldom consolidated into a farm, according to the American system, but one field may lie as far as 10 miles from the community center, whereas another may lie several miles away in a totally different direction. The waste in time spent going to and from work is enormous.

In the river valleys and on the plains along the Danube the character of the soil on the various plots belonging to any individual family might not vary greatly from those of their neighbors, but in the foothills of the Carpathian and Transylvanian Mountains the land was parceled into narrow strips, and these strips universally extend uphill, the soil at the top being much poorer than the soil at the bottom. Not only that, but whenever the peasant was rich enough to own a plow he invariably plowed up and down hill and finished his dead furrow in the middle line of his strip. After generations of this practice such a strip of land became higher at the margins than in the middle, which was often a barren gully on account of erosion. The strips of peasant lands are usually only a few yards wide and perhaps a hundred yards or more in length. They are usually located on the rougher ground and appear like a ragged fringe on the outskirts of some large estate.

In the foothills and rolling country the large estates occupied the plateaus and valleys, whereas the peasant fields were crowded upon the surrounding hillsides. These large estates, in sharp contrast to the scattered strips of peasant lands, comprised broad and fairly level fields consolidated conveniently about a centrally located group of farm buildings.

In Bessarabia, Bukovina, and Transylvania the estate was often owned and operated by a family of different blood from that of the peasants in the neighboring village. The mother tongue was different and the outlook on life wholly unlike. The peasantry often looked upon the landlords as aliens and the landlords frequently treated the peasants as members of an inferior, if not a conquered race.

The large estates in all the districts that now form Greater Rumania were usually operated under efficient management upon much the same principles as would be the case in Germany or France. The seed bed was carefully prepared in season, well-thought-out systems of crop rotation were employed, improved varieties of seed were used, the poorer soils were fertilized, and modern machinery was employed to a large extent, although at the beginning of the World War much grain was still harvested with a sickle. In regions of uncertain rainfall the most approved methods of moisture conservation were employed. Small grains were sometimes planted in rows with intervening spaces of sufficient width to admit surface tillage during the growing period. On the whole the large estates were operated upon a scientific basis that was more or less up to date.

On the other hand the size and topography of the peasant's fields did not permit him to use machinery except of the simplest type. The methods he employed were primitive, often dating back 2,000 years, to the time the country had been settled by emigrating farmers from Rome. In many localities these methods had undergone little change during the 2,000 intervening years.

HOLIDAYS AND INDUSTRY

The Rumanian peasant is not industrially or commercially inclined. Serban says: "The gypsy works only under stress of hunger; the Rumanian only from need; the Hungarian for a peaceful life; the Slovak and the German for profit" (40 p. 60). National holidays play an important rôle. According to Doctor Busuioiescu (13) (as quoted by Serban) (40, p. 8, 60) there are only 257 workdays a year in Rumania, as there are 56 workless holidays in addition to 52 Sundays. The frequency of national holidays, upon which no work is done, is very significant to farming, because certain field work should be done at a certain time and the interposition of a series of holidays at a critical period in planting or harvesting time may have a serious effect upon production. There is a series of holidays at corn-planting time which seriously retards spring work at a critical period. Other holidays at harvest time cause all work to cease even though the condition of the crop or the weather may demand that the grain be speedily cared for.

In Rumania, there are 108 days during which the peasant feels that he is obligated to do no work. Winter cuts down the number of workdays materially; weather conditions further reduce the work period. It is probable that in Rumania, as in Serbia, the peasant is engaged not more than 75 to 80 days in actual field work. The remainder of his time is spent in meditation and "pottering around."

PRE-WAR CONDITION OF THE PEASANTS

G. Jonescu-Sisesti, the director of agriculture at Bucharest, in 1912, wrote as follows in *Rumänien Bäuerliche Landwirtschaft* (19):

When the peasants were "freed" in 1864 each was given the right to purchase a small plot of land, but they did not receive enough acreage to support their families and at the same time to meet the installments on the cost of their holdings. They were, therefore, obliged to turn again to the landlord and either rent from him additional land or work for him on shares or for a wage. As a part of the compensation for the liberation of their serfs the landlords had been given at that time a clear title to the lands which they had formerly held as tenants of the State. The new landlords desired that the peasants should work for a wage, but they themselves had little capital, little machinery, and little livestock. They could not farm at all without the help of the peasant, his animals, his plows and wagons, so in the very beginning of this new agricultural system the interests of the landlords and the peasants were set in opposition.

The relationships between the peasants and the landlords became very complicated and many curious systems developed; for example, first, in his need, the peasant often had to borrow money from the landlord as an advance against his summer wages, in which case he became virtually the slave of the landlord; second, when the peasant did not have cash to pay a rental the lord charged the highest possible rate; third, if the peasant paid his rent with labor the rent price was placed too high and his wages too low; fourth, when the landlord let land on shares not only would he take, by agreement, from one-half to one-third of the crop but the peasant must also do a certain amount of work on the lord's other fields; fifth, the peasant was often granted the right to work a certain piece of land, taking all the yield, on the condition that he work an equal piece for the landlord. In such cases the peasant's plot was undersized and the landlord's

was oversized. In all cases the peasant was obliged to do the landlord's work first and his own when he could. If the peasant refused to do the work required by the landlord, he was frequently forced to do so by the State as though it had been military service, or, as a penalty, he was not allowed to use the roads that passed through the estate to haul his crops to market. Often these roads were the only ones in the vicinity. In other cases the peasants were not allowed to use the footpaths across the fields of the estate. When they complained, laborers were brought in from Russia, Bulgaria, and Serbia until the peasants were forced by hunger to make terms. Pasture lands remained in the hands of the estate owners, as did also the watering places. The peasant was not allowed to pasture his stock without paying with both work and money.

This condition was responsible for the peasant uprising in 1907. At this time several reforms were instituted: The villages throughout the pasture lands to be held in common, and the rural bank was reorganized for the purpose of extending credit to the peasant. These reforms, however, did not include any additional grants of land; the peasants were still obliged to depend upon the landlords as before; so that the old abuses were soon resumed. It was not until 1918, near the close of the World War, that a genuine land reform was put into effect.

Similar conditions in Russia led to the peasant uprising in Besarabia in 1905. There are no records of conditions in Transylvania and Bukovina; but when the protection of the Hungarian and Austrian Armies was withdrawn at the close of the World War a large number of estate owners, whose families had held their land for many generations, abandoned their holdings and fled to Budapest or Vienna.

LAND TENURE

The total area of the old Kingdom of Rumania in 1909-1913, before the treaty of Bucharest at the end of the Balkan War, was 32,167,000 acres, of which 1,995,000 acres were covered by water and 5,208,000 acres were nonagricultural lands, including mountains, waste lands, cities, towns, roads, etc. The total productive area was therefore 24,964,000 acres, of which 5,640,000 acres were under standing timber. The remaining 19,324,000 acres comprised permanent pastures, vineyards, orchards, and cultivated lands.

The area of these cultivated lands had remained remarkably constant for generations; thus, before the distribution of land to the serfs in 1864, it was reported to be 19,340,000 acres, at which time 3,367,000 acres were owned by peasants and 15,973,000 acres remained under control of the Crown and in the hands of a few great landlords—descendants of the former voivodes.

TABLE 5.—*Productive land¹ in the old Kingdom of Rumania held by peasants and by large estates, 1864, 1881, 1889, and 1912*

Item	Families receiving land	Productive land in—	
		Large estates	Small holdings
	Number	1,000 acres	1,000 acres
Situation prior to 1864.....			
1864.....	456,461	15,973	3,367
1881.....	6,686		4,717
1889.....	106,714		1,351
Number of small holdings sold by the rural bank.....			48
Number of small holdings received by peasants in 1912.....			31
Situation before the World War.....		19,749	9,391

Information furnished by Centrala Obștilor Statelor (office in charge of land reform), Bucharest.

¹ Total area less forests and unproductive lands. Productive lands include plowlands, meadows, pastures, vineyards, etc.

² In 1912 there were 3,429 heads of families classified as owning large estates.

³ Land-owning peasants were estimated at 1,129,782 heads of families in 1913.

In 1864 and in 1889 large grants of land were made to the peasants, so that at the outbreak of the World War the peasants, as indicated in Table 5, possessed 9,591,000 acres of the cultivated lands, whereas 9,749,000 acres still remained in the hands of the owners of large estates.

Only 4,154,000 acres of large-estate plowlands were operated as large holdings in 1913. (Table 6.) The peasants owned and operated 6,739,000 acres of plowlands in holdings of less than 247.1 acres each and in addition rented 3,539,000 acres almost exclusively from large estates.

TABLE 6.—*Plowland operated by owners and that operated by renters, classified according to size of land holdings, in the old Kingdom of Rumania, 1913*

Size of holdings		Head of families		Area owned by each class	Area rented by each class	Area operated by each class	
Hectares ¹	Acres						
		Number	Per cent	1,000 acres	1,000 acres	1,000 acres	Per cent
Less than 2.....	Less than 4.9.....	475,610	42.1	1,042	372	1,414	8.8
2 to 5.....	4.9 to 12.3.....	441,336	38.9	2,584	1,237	3,821	26.5
5 to 10.....	12.3 to 24.7.....	161,550	14.3	1,600	1,164	2,764	19.2
10 to 25.....	24.7 to 61.8.....	42,999	3.8	980	557	1,537	10.6
25 to 50.....	61.8 to 123.6.....	5,697	.5	349	128	477	3.3
50 to 100.....	123.6 to 247.1.....	1,554	.1	184	81	265	1.8
100 to 500.....	247.1 to 1,235.5.....	2,377	.2	697	755	1,452	10.1
500 and over.....	1,235.5 and over.....	1,043	.1	1,225	1,477	2,702	18.7
Total.....		1,133,202	100.0	8,661	5,771	14,432	100.0

Furnished by The Ministry of Agriculture at Bucharest.

¹ One hectare=2.471 acres.

² Average plowland during 1909-1913 was 15,034,000 acres. See Table 3.

THE LAND REFORM

During the time that the Rumanian Government had been forced by the Central Powers to abandon Bucharest and establish a temporary capital at Jassy, unrest developed among certain elements of the peasant army which threatened to reach the revolutionary stage. At that critical juncture a sweeping land reform, the provisions of which had not been carefully reconsidered, was promised to the peasants, who consequently remained faithfully at their posts and fought out the war to the end. At the termination of the World War the land reform was put into effect, practically as promised to the men in the trenches, through the decree of December 16, 1918. By the provisions of this decree Ferdinand I directed the expropriation of 5,527,000 acres of the large-estate lands of the old Kingdom of Rumania, including 68,000 acres of forests and unproductive lands and 5,459,000 acres of crop lands, meadows, pastures, and other productive lands.

As indicated in Table 7, expropriation affected the great privately owned estates and the lands of societies and institutions most severely. The State itself did not make an exception of its own lands, and even the Crown estates were included in the reform program.

TABLE 7.—*Expropriated production land, excluding forests, old Kingdom of Rumania, prior to January 1, 1925*¹ (36, 1924, p. 47)

Owners	Owners from whom expropriated		Expropriated land
	Number	Acres	
Private.....	3,880	4,458,000	
Absentee landlords.....	84	167,000	
Foreigners.....	39	141,000	
Societies and institutions.....	606	1,046,000	
State.....	312	811,000	
Total.....	4,930	6,621,000	

¹ Includes expropriation of land in former Bulgarian territory, if any.

As indicated in Table 7, about 1,162,000 more acres of productive land were expropriated than were provided for by the decree of December 16, 1918. This discrepancy is accounted for in the following manner: According to the letter of the act, on which the land reform was based, the size of the estate to be retained by each large owner was fixed at 494 acres in regions of dense population, at 741 acres in regions of medium density of population, and at 1,236 acres in regions of sparse population—the so-called colonization districts along the Danube River. Many estate owners, however, had estates in more than one of these regions, and it was found that often the holdings retained by such owners totaled more than 1,236 acres. To remedy this, additional land was expropriated in order that the total held by one family should conform to the spirit of the original act. This additional expropriation of 1,162,000 acres may include lands expropriated in former Bulgarian territory if any of the estates in these regions were large enough to come within the jurisdiction of the land-expropriation officials.

As Transylvania, Bukovina, and Bessarabia came under the jurisdiction of Rumania, land reforms were put into effect in each of these administrative districts. The conditions differed in some details from those operative in the old Kingdom, but the final result involved 4,566,000 acres in Transylvania, 189,000 acres in Bukovina, and 3,686,000 acres in Bessarabia.

The liberal Government had planned to hold these expropriated estates under Government control and to operate them through the medium of cooperative societies. The peasants protested against this and forced the division of the land into holdings of which the size of the allotment per family varied according to the density of the population. The peasants demanded actual possession of the land, and where disturbances proved serious the Government hastened the process of making the transfer. Although redistribution of expropriated lands has proved to be a very slow and involved process, by the end of 1924 only a relatively small amount (about 65,000 acres) of the land destined to be turned over to the actual possession of the peasants remained unassigned in the old Kingdom. There were 260,000 acres unassigned in Transylvania and 7,000 acres in Bukovina.

According to the present arrangement, the peasant is allowed 20 years in which to pay for his land, paying only the capital sum. The interest is paid by the Government to the former owner, who has received for the land taken from him bonds payable in full at the end

of 20 years. A premium amounting to the interest for 20 years was awarded to any peasant who paid for his land in full at the time of transfer.

In Bessarabia the land to be retained by the estate owner was fixed at 247 acres; in Transylvania and Bukovina the maximum was 1,236 acres. In addition, the estate owner has been allowed to retain certain vineyards, orchards, etc. Land subject to inundation has not been expropriated.

Up to December 31, 1924, the area of land in Greater Rumania that had passed or was in the process of passing from the control of the large estates into the hands of the peasants was approximately 14,795,000 acres, as indicated in Table 8. Of this area more than 11,690,000 acres consisted of arable land, meadows, and pastures.

TABLE 8.—*Expropriation program prior to January 1, 1925, Greater Rumania*¹ (36, 1924, p. 47)

Region	[In thousands of acres—i. e., 000 omitted]						
	Arable and meadow land	Pasture land	Forests	Other lands	Expropriated after expropriation law	In process of expropriation	Total
Old Kingdom of Rumania.....	5,133	326	96	32	1,162	65	6,754
Transylvania.....	1,367	811	1,662	66	290	4,166	8,362
Bukovina.....	129	28	22	3	7	189	3,686
Bessarabia.....	2,736	490	400	3	1,162	332	14,795
Total.....	9,365	1,165	2,210	561	1,162	332	14,795

¹ Expropriation of land leased under law No. 3697/918.² Arable land and meadows.

Whereas expropriation was abrupt, throwing a large area out of cultivation in 1919, the distribution of these former estate lands, except in Bessarabia, has been gradual, and each year up to 1925 a few hundred thousand acres more have been brought under cultivation than were in crop production the year before.

In 1921 fully 24.1 per cent of the plowland was rented to and operated by farming associations, some of which were cooperatively managed. As shown in Table 9, one of the outstanding trends of farm operations has been the reduction of areas seeded by these associations each year until in 1925 they put only 2.7 per cent of the land into crops, as compared with 84.9 per cent seeded by small peasant farmers. Throughout this period the large estates of Greater Rumania have seeded about 12 per cent of the total area of crop lands each year.

TABLE 9.—*Crop land: Acreage seeded, by holdings, in Greater Rumania; average, 1909–1913 and annual, 1921–1925*

Period	Large estates		Small peasant holdings		Agricultural-association holdings		Total holdings
	1,000 acres	Per cent	1,000 acres	Per cent	1,000 acres	Per cent	1,000 acres
Pre-war average, 1909–1913.....	.....	.....	.....	.....	.....	.....	128,926
Post-war period:							
1921.....	3,181	12.8	15,668	63.1	5,967	24.1	24,816
1922.....	3,105	12.1	19,411	76.0	3,690	11.9	25,546
1923.....	3,169	12.0	21,592	81.6	1,708	6.4	26,469
1924.....	3,495	12.4	23,454	83.3	1,192	4.3	28,141
1925.....	3,650	12.4	24,909	84.9	791	2.7	29,350

¹ See Table 3 for source of data for pre-war; 1921–1925 (36, 1925, p. 47).² Does not include fallow land as follows: Pre-war, 3,342,000 acres; 865,000 acres in 1923; 845,000 acres in 1924, and 968,000 acres in 1925.

The large estates slowly increased their seeded areas a few hundred thousand acres yearly between 1923 and 1925. On the other hand the expropriated land that was at first rented to agricultural associations in 1921 had been almost entirely transferred to peasant owners by 1925. A record of the transfers of plowland to the peasants maintained during 1921 and 1922 showed an increase of 3,743,000 acres in the latter year over the former. During the next three years the record pertained only to the areas seeded. Between 1923 and 1925 the areas seeded by small peasant farmers increased 3,317,000 acres, and the land transferred probably exceeded this amount. In any case the land actually put into crops by the peasants in 1925 was 9,241,000 acres greater than all plowland possessed by them in 1921.

The influence of this shift in the management of more than 9,000,000 acres of crop land upon agricultural production in Rumania was profound, acutely affecting the economic life of the nation.

THE INFLUENCE OF THE LAND REFORM UPON AREAS SEEDED¹⁴

OLD KINGDOM OF RUMANIA

As far as areas seeded are concerned, the estates and peasants of the old Kingdom of Rumania had developed a routine of planting to such an extent that year after year about the same area was seeded to each of the five chief cereals, as indicated in Table 10.

TABLE 10.—Cereals: Acreage seeded in the old Kingdom of Rumania, average, 1906-1910 to 1909-1913, and in the old Kingdom including area ceded from Bulgaria, average, 1909-1913 to 1921-1925 (31)

[In thousands of acres—i. e., 000 omitted]

Region and year	Wheat	Corn	Barley	Oats	Rye
Old Kingdom of Rumania:					
Average—					
1906-1910.....	4,535	5,011	1,377	1,005	389
1909-1911.....	4,489	5,013	1,352	1,075	364
1909-1912.....	4,662	4,988	1,347	1,100	344
1909-1913.....	4,576	5,150	1,310	1,106	316
Old Kingdom, including area ceded from Bulgaria:					
Average—					
1909-1913.....	4,961	5,243	1,441	1,147	336
1919-1921.....	2,794	4,807	1,583	1,455	178
1920-1921.....	2,879	4,888	1,803	1,660	164
1921-1925.....	3,250	5,062	2,068	1,775	159
Annual, 1925.....	3,925	5,704	2,095	1,708	159
Percentage of land under chief cereals seeded to each:					
Average, 1909-1913.....	37.8	39.9	11.0	8.7	2.6
Annual, 1925.....	28.9	42.0	15.4	12.6	1.1

See following tables for area ceded from Bulgaria.

¹ Average for old Kingdom, 1909-1913, plus 1909-1912 average for former Bulgarian territory annexed to Dobruja in 1913, for which year there are no data.

By comparing the percentage of the total area under the five chief cereals seeded to each cereal during 1909-1913 and in 1925 it is evident that the relative areas under wheat and rye had greatly decreased, whereas those under corn, barley, and oats had increased.

¹⁴ One of the striking characteristics of the agriculture of southeastern Europe is the persistence of agricultural customs and habits. Neighboring villages are frequently of different racial origin, and there is a sharp contrast in the methods they employ in planting and harvesting their crops, which differ according to the traditions of tilling the soil that have been handed down from generation to generation, dating back to remote ancestors. It is almost impossible to change these racial habits of centuries by teaching or demonstrating new methods that have come into use only during the past few decades.

The general economic situation, associated with legislation regarding the domestic sale and the exportation of bread cereals, had some influence upon these changes, but the most profound influence was that exerted by the difference between the ways in which the peasants and estate owners seeded their respective holdings.

Records have been kept since 1905 which show the cereal acreage of the old Kingdom of Rumania seeded on large estates and on small holdings. These records, summarized in Table 11, indicate the different rates at which cereals were seeded under the two systems of agriculture.

TABLE 11.—Cereals: Acreage seeded on large estates and on peasant holdings in the old Kingdom of Rumania; average, 1905-1909 and 1909-1913, and annual 1919 and 1921

Holding and cereal	Average				1919 ¹		1921 ¹	
	1905-1909		1909-1913		Acreage	Percentage of total	Acreage	Percentage of total
	Acreage	Percentage of total	Acreage	Percentage of total				
Large estates:	1,000 acres		1,000 acres		1,000 acres		1,000 acres	
Bread cereals—	2,415	58.7	2,951	61.9	823	67.6	545	32.6
Wheat.....	46	1.1	99	1.0	1	1.9	11	0.7
Rye.....								
Total.....	2,461	59.8	2,380	62.9	805	69.5	556	33.3
Barley.....	347	8.4	335	8.8	75	6.0	279	16.7
Oats.....	372	9.1	377	10.0	98	7.9	303	18.1
Corn.....	933	22.7	691	18.3	207	16.6	532	31.9
Total 5 chief cereals.....	4,113	100.0	3,783	100.0	1,245	100.0	1,670	100.0
Peasant holdings:								
Bread cereals—								
Wheat.....	2,125	25.9	2,235	25.7	2,122	26.6	2,324	24.8
Rye.....	337	4.1	277	3.2	196	2.5	168	1.8
Total.....	2,462	30.0	2,512	28.9	2,318	29.1	2,492	26.6
Barley.....	1,020	12.4	984	11.3	513	6.4	1,474	15.8
Oats.....	657	8.0	728	8.4	499	6.2	1,330	14.2
Corn.....	4,073	49.6	4,459	51.4	4,455	56.3	4,967	48.4
Total 5 chief cereals.....	8,212	100.0	8,653	100.0	7,985	100.0	9,363	100.0
All holdings:								
Bread cereals—								
Wheat.....	4,540	36.8	4,576	36.7	2,964	32.1	2,869	26.0
Rye.....	383	3.1	316	2.5	219	2.4	179	1.6
Total.....	4,923	39.9	4,892	39.2	3,183	34.5	3,048	27.6
Barley.....	1,367	11.1	1,319	10.6	588	6.4	1,753	15.9
Oats.....	1,029	8.4	1,105	8.9	507	6.4	1,633	14.8
Corn.....	5,006	40.6	5,150	41.3	4,802	52.7	4,999	41.7
Total 5 chief cereals.....	12,325	100.0	12,496	100.0	9,230	100.0	11,033	100.0

Acreage in 1905-1913 and 1919 (31, 1909, 1915, 1919).

Acreage in 1921 furnished by the Ministry of Agriculture of Rumania.

¹ Includes Durostor and Caliacra.

Each large-estate operator and each peasant farmer had established a fairly uniform routine in pre-war years as to the proportion of his lands to be seeded to each cereal crop. There was some fluctuation from year to year in the total cereal acreage, but there was remarkably little change in the relative area planted to each crop.

Before the World War the area seeded to winter grains—wheat and rye—was about equal to and in a sense limited by the area seeded to corn. Corn is grown by the Rumanian peasant for food, whereas wheat is produced for sale. In the old Kingdom the area seeded to corn had to be maintained at least at a certain minimum to insure food for the masses. Had there been a shortage in the crop, corn would have had to be imported, as the masses of the peasants are not accustomed to making wheat and rye bread. Their staple diet consists of a thick corn-meal mush called "mamaliga."

The crop rotation on peasant fields in Rumania is almost universally an alternation between corn and wheat or corn and some other cereal. The peasants seeded an average of about 4,500,000 acres to corn during 1909-1913 or more than the area of all other cereals combined. The area seeded to corn is thus almost 1,000,000 acres greater than all the land rented by peasants from the great landlords during 1913. It is stated on the authority of the former director of agriculture, G. Jonescu-Sisesti, that this great area of rented land was seeded to corn by the peasants not only because of the peasants' liking for this cereal but because the landlord required that the rented land be planted to corn. As the corn crop must be hoed, the land was thus better prepared for winter wheat.

In order to get the land at all the peasant was frequently required to work for the landlord. This meant that his own small plot was seeded late, since he must first help to seed the fields of the landlord. He must also get the corn off the land early enough to allow his landlord to sow winter wheat. This meant that the corn was often harvested in an immature condition, reducing the yield and lowering its food value.

Almost all wheat seeded by the large estates was on land that had been rented by the peasants and previously planted to corn by them, since the estate owners themselves planted relatively little of Rumania's corn crop.

Before the World War, a little more than half the wheat area was seeded by the estates and a little less than half by the peasants. As a result of the war and the disorganized economic and social conditions, including the land reform, following the war, these agricultural habits were broken up, and Rumanian field-crop production passed into a state of flux. Increases and decreases in the areas seeded to the different cereals followed the many changing and complex factors that disturbed normality. However, through all these fluctuations in crop seeding both the peasants and the estates have shown a certain tendency to maintain the old order of farming although somewhat modified by the new order of land tenure.

In 1921 the estates, deprived of the peasants' cornfields in which to plant winter wheat, were forced to regulate their wheat acreage to the area of corn that they themselves could plant.

The peasants in 1921 seeded 680,000 acres more to the five chief cereals than was their custom before the World War. Their wheat acreage was about as large as they had previously been accustomed to plant and their corn acreage was about sufficient to meet their own requirements. As they had extra land to plant they seeded barley and oats. It requires more foresight to seed a winter crop in August to be harvested the following summer than it does to put in a spring crop to

be harvested in less than six months. As the average peasant does not possess the foresight of the average manager of a large estate he usually puts off his planting until the last possible minute and then rushes his plowing and seeding. Winter grain is seeded as late as December, and corn is planted as late as July, with consequent poor returns.

Combining the data regarding peasant and estate seedings in 1921 indicates that corn was put in at about the same normal rate, whereas former wheat areas were replaced by barley and oats.

Between 1921 and 1925 the acreage of wheat, rye, barley, oats, and corn of the old Kingdom including Durostor and Caliacra (ceded by Bulgaria in 1913), was increased 2,558,000 acres or to a total of 13,591,000 acres, as compared with 13,128,000 acres in pre-war days. During this 5-year period ended 1925 the rates at which the chief cereals were seeded have varied but little. Corn, barley, and rye were within one-half of 1 per cent in the same relationship to the total acreage of these five cereals at the end of the period that they were in the beginning. Wheat had increased 2.9 per cent, and oats decreased proportionately. The general trend of peasant farming in the old Kingdom of Rumania as compared with estate farming has taken the form of a shift from winter grains (such as wheat and rye) toward spring grains (barley, oats, and corn).

BESSARABIA

The first recorded crop statistics giving details of large-estate and peasant agriculture in Bessarabia after the World War were for the year 1920. In that year the peasants of Bessarabia seeded 4,949,000 acres to the five chief cereals, as contrasted with an average of 3,156,000 acres during 1902-1911 as indicated in Table 12.

TABLE 12.—Cereals: Acreage seeded in Bessarabia on large estates and small holdings; average, 1902-1911, and annual, 1920, and on all holdings in 1925

Cereal	Large estates		Peasant holdings				All holdings				
	Average 1902-1911	1920	Average 1902-1911	1920	Average 1902-1911	1920	Average 1902-1911	1920	1925		
Bread cereals:	1,000	Per	1,000	Per	1,000	Per	1,000	Per	1,000	Per	1,000
Wheat—	acres	cent.	acres	cent.	acres	cent.	acres	cent.	acres	cent.	acres
Winter.....	563	22.0	22	36.1	605	14.8	1,331	26.9	1,018	18.4	1,353
Spring.....	304	12.0	.....	.....	587	18.6	.....	.....	891	15.7	.....
Rye.....	275	10.8	4	6.6	217	7.8	271	5.5	322	9.2	275
Total.....	1,162	45.8	26	42.7	1,299	41.2	1,602	32.4	2,461	43.3	1,628
Barley.....	532	20.9	15	24.6	786	24.9	1,822	36.8	1,318	23.1	1,837
Oats.....	127	5.0	11	18.0	52	1.6	270	5.4	179	3.1	281
Corn.....	719	28.3	9	14.7	1,019	32.3	1,256	25.4	1,738	30.5	1,264
Total 5 chief cereals.....	2,540	100.0	61	100.0	3,156	100.0	4,949	100.0	5,696	100.0	5,010
									5,010	100.0	6,153

Acreage 1902-1911 (4).

Acreage in 1920, furnished by Ministry of Agriculture at Bucharest.

Acreage in 1925 (5), pp. 12-13 for Rumania.

This great increase in the area seeded by the peasants is accounted for by the fact that expropriation in Bessarabia was more drastic

and in other ways different from expropriation in the old Kingdom. The peasants of the old Kingdom were crowded into the foothills of the Carpathian and Transylvanian Mountains, more than a day's journey by rail from the thinly populated surplus districts in which the large estates were situated. In Bessarabia the large estates were situated upon the plateaus and were surrounded by the peasants' meager holdings upon the hillsides. To occupy the expropriated lands, it was necessary for the peasants of Bessarabia to close in only a few miles, not farther than they were in the habit of going every day to their work. They took possession almost immediately of their new holdings so that, in 1920, Bessarabia was able to seed 88 per cent of the pre-war (1902-1911) cereal acreage.

The peasants of Bessarabia, before the World War, planted a smaller proportion of their land to winter wheat, rye, and oats and a greater proportion to spring wheat, corn, and barley than did the large estates. In 1920 the peasants increased their acreages of all five cereals, the greatest increases being in the acreages of barley and oats, in sharp contrast to the large estates which planted almost no land, leaving most of their fields fallow.

By 1925, the area under the five chief cereals on all holdings was 457,000 acres greater than during 1902-1911. Rye alone of all the cereals was seeded in less amount than under pre-war conditions. The total acreage of wheat was about average, winter wheat being 319,000 acres more and spring wheat about 228,000 acres less than during 1902-1911, the drought and consequent crop failures in 1922 and 1924 having discouraged the planting of spring wheat in Bessarabia.

Expropriation is complete in Bessarabia, where it is probable that the acreage of corn, barley, and oats will continue higher than before the World War and the acreage of bread cereals lower on account of the reduced acreage of rye. It is improbable that wheat acreage will increase materially above the 1925 level, and the high ratio of winter to spring wheat will tend to decrease to more nearly the pre-war average relationship.

BUKOVINA

Austrian records of pre-war conditions contain no separate information relative to the areas seeded on large estates as compared with conditions of peasant farming. The land reform in Bukovina involved only 129,000 acres of arable lands and meadowlands.

The total acreage under the five chief cereals since 1921 has not equaled the average 1909-1913 area in any year up to 1925.

Bukovina has been cut off from former sources of wheat supply and since the World War appears to have increased the area under this cereal more nearly to meet local demands, though decrease in rye acreage has brought the area under bread cereals to about the pre-war level. Corn has remained about the same as before the war, whereas the acreage of oats has slightly increased and barley has fallen off as indicated in Table 13.

TABLE 13.—Cereals: Acreage seeded in Bukovina; average, 1909-1913, and annual, 1921-1925

Cereal	Average 1909-1913		1921	1922	1923	1924	1925	
	1,000 acres	Per cent	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	Per cent
Bread cereals:								
Wheat.....	48	10.1	38	55	49	74	61	13.2
Rye.....	67	14.2	41	62	50	61	50	10.8
Total.....	115	24.3	79	117	99	135	111	24.0
Barley.....	83	17.5	81	80	94	76	69	15.0
Oats.....	118	24.9	88	88	119	113	122	26.5
Corn.....	158	33.3	150	130	143	144	159	34.5
Total, 5 chief cereals.....	474	100.0	398	415	455	468	461	100.0

Acreage for 1909-1913 (27, 1921).

Acreage for 1921-1925 (51).

These changes in the seeding of the five chief cereals in Bukovina are relatively small and have been without appreciable effect upon the Rumanian agricultural situation.

There are only 7,000 acres of expropriated lands to be readjusted in Bukovina, so it is probable that the seeding data in Table 13 indicate the future trend of agriculture in this district and that little further change may be expected.

TRANSYLVANIA

There is no information relative to the manner in which the large estates of the various departments now comprising Transylvania seeded their lands before the World War. Comparing the estimates of total pre-war area seeded, with those of 1925, shows a decrease of 783,000 acres under the five chief cereals. The acreage of barley is greater than in the pre-war period. There also appears to be a stronger tendency to maintain wheat acreage at former levels than to keep corn areas up to the pre-war average.

Before the World War the administrative District of Transylvania as constituted to-day seeded 2,417,000 acres of wheat, producing annually 32,650,000 bushels (net), of which 5,673,000 bushels were shipped to other parts of the Austro-Hungarian Empire as it then existed, leaving 26,977,000 bushels as the yearly domestic disappearance. In 1925 the area under wheat reached 2,240,000 acres, and net production under unusually favorable conditions reached 33,000,000 bushels, so that, in 1925, Transylvania appears to have regained her pre-war status of having an exportable surplus of wheat to ship to central Europe.

During 1920 and 1921 the population of Transylvania suffered from a shortage of wheat and was unable to get relief either from the old Kingdom or from the plains of Hungary. This probably accounts for the increased ratio of seeding wheat that is indicated in a comparison of the 1925 data in Table 14 with the 1909-1913 average. In Transylvania corn is employed to a greater extent as feed for livestock than was the practice in the old Kingdom, and there has been a tendency to allow this cereal to go out of cultivation more rapidly than the high-priced human food. Other cereals do not seem to have been much affected by postwar conditions.

TABLE 14.—Cereals: Acreage seeded in Transylvania; average, 1909-1913, and annual, 1921-1925

Cereal	Average 1909-1913		1921	1922	1923	1924	1925	
	1,000 acres	Per cent	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	Per cent
Bread cereals:								
Wheat.....	2,417	88.6	1,917	2,083	1,670	2,251	2,240	40.9
Rye.....	308	4.9	342	229	163	215	223	4.1
Total.....	2,725	43.5	2,259	2,311	1,833	2,429	2,463	45.0
Barley.....	317	5.1	416	347	372	376	365	6.7
Oats.....	763	12.2	724	576	645	678	680	12.4
Corn.....	2,449	36.2	1,911	1,783	1,808	1,827	1,963	35.9
Total, 5 chief cereals.....	6,254	100.0	5,310	5,017	4,661	5,310	5,471	100.0

Acreage, 1909-1913, calculated from (16); acreage, 1921-1925 (37).

In each of the four administrative districts of Greater Rumania there has been a decrease in bread-cereal acreage, comparing the 1925 acreage with the pre-war estimated average given in Table 15. In the old Kingdom and in Transylvania there was a falling off in wheat which was somewhat offset by increased wheat acreages in Bessarabia and Bukovina. The total net result is a decrease below pre-war average of 1,071,000 acres in wheat for the year 1925. There was a small though insignificant increase in 1926 over 1925 of 67,000 acres of wheat and 62,000 acres of rye.

There were 9,713,000 acres under corn in 1925, as compared with 9,742,000 acres before the World War. In 1926, corn acreage was 10,031,000 acres.

Up to 1925 the marked shifts in acreage of cereals in Greater Rumania were from bread cereals to barley and oats; an increase of 709,000 acres in the case of the former cereal and 722,000 in the case of the latter.

In 1926 the acreages of barley and oats decreased perceptibly, resulting in a decrease in total cereal area of 198,000 acres below that of 1925. This was accompanied by an increase of 129,000 acres in bread cereals and 318,000 acres in corn.

TABLE 15.—Cereals, potatoes, and sugar beets: Acreage seeded in Rumania; average, 1909-1913, and annual, 1925 and 1926

Crop and year	Old Kingdom ¹	Transylvania	Bessarabia	Bukovina	Rumania	
	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	Per cent
Wheat:						
Average, 1909-1913.....	4,861	2,417	1,801	43	8,227	35.6
1925.....	3,925	2,240	1,930	61	8,156	31.8
1926.....					8,223	32.3
Rye:						
Average, 1909-1913.....	336	308	516	67	1,227	4.8
1925.....	139	225	236	50	668	2.6
1926.....					730	2.8
Total bread cereals—						
Average, 1909-1913.....	5,207	2,725	2,317	115	10,454	40.4
1925.....	4,064	2,463	2,166	111	8,804	34.4
1926.....					8,953	35.1

¹ Includes Durostor and Callara, 1909-1912, calculated from data in (9).

TABLE 15.—Cereals, potatoes, and sugar beets: Acreage seeded in Rumania; average, 1909-1913, and annual, 1925 and 1926—Continued

Crop and year	Old Kingdom	Transylvania	Bessarabia	Bukovina	Rumania	
	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	Per cent
Barley:						
Average, 1909-1913.....	1,441	317	1,661	83	3,502	13.5
1925.....	2,085	355	1,682	69	4,211	16.4
1926.....					3,829	15.0
Oats:						
Average, 1909-1913.....	1,147	763	178	118	2,206	8.5
1925.....	1,708	680	418	122	2,928	11.4
1926.....					2,665	10.5
Corn:						
Average, 1909-1913.....	5,243	2,449	1,892	158	9,742	37.6
1925.....	5,704	1,963	1,867	139	9,713	37.8
1926.....					10,031	39.4
Total, 5 chief cereals—						
Average, 1909-1913.....	12,128	6,254	6,048	474	25,904	100.0
1925.....	13,591	5,471	6,133	461	25,676	100.0
1926.....					25,478	100.0
Potatoes:						
Average, 1909-1913.....	126	191	42	91	350	-----
1925.....	162	191	88	119	440	-----
1926.....					442	-----
Sugar beets:						
Average, 1909-1913.....	32	31	4	6	73	-----
1925.....	76	28	35	22	159	-----
1926.....						-----

Acreage in 1909-1913, for old Kingdom of Rumania (31, 1914); for Transylvania, calculated from (16); for Bessarabia (39, 1914, 8-10); for Bukovina, cereals and potatoes (27); sugar beets (7). Acreage in 1925 (35) for Rumania. Acreage in 1926, from official records of U. S. Department of Agriculture, Bureau of Agricultural Economics.

¹ In addition 56,000 acres were planted in cornfields in old Rumania.² In addition, there were 62,000 acres of potatoes planted in cornfields in the old Kingdom, 78,000 in Transylvania, 18,000 in Bessarabia, 5,000 in Bukovina, and a total of 163,000 in Rumania.

INFLUENCE OF THE LAND REFORM ON CROP YIELDS

THE OLD KINGDOM OF RUMANIA

From the time they came into possession of their estates in 1864 until the last few years before the World War the operators of large estates were almost entirely dependent upon the peasants, not only for manual labor but for draft animals, carts, plows, and other implements with which to put their crops into the ground and to harvest and haul their products to market. As time passed the situation changed somewhat, and the large estates accumulated modern farm equipment. But this was never sufficient for their needs and they still placed great dependence upon the peasants, particularly at harvest time. The principal differences between the two systems of farming at that time were that the crops on the large estates were put in more nearly on time, were planted with better seed in better-prepared seed beds, and were harvested at more nearly the proper stage of ripening than was the case with the crops of the small peasant farmer.

As indicated in Table 16, wheat on small holdings averaged a yield of 2.4 bushels per acre below that obtained on large estates. Rye yields averaged 4 bushels lower, barley 3.4 bushels, oats 5.9 bushels, corn 4.2 bushels, potatoes 38 bushels, and sugar beets 1 ton lower on small holdings than on the large estates.

TABLE 16.—Cereals, potatoes, and sugar beets: Yields per acre on the large and small holdings of the old Kingdom of Rumania, 1909-1913 (31, 1914)

Year	Yield per acre of—							
	Wheat.		Rye		Barley		Oats	
	Large holdings	Small holdings	Large holdings	Small holdings	Large holdings	Small holdings	Large holdings	Small holdings
	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>
1909.....	14.9	12.1	12.1	8.6	16.9	13.9	25.7	19.5
1910.....	24.8	21.0	22.9	17.6	24.4	20.7	29.5	23.5
1911.....	20.2	19.0	18.3	15.0	22.7	20.3	30.5	24.4
1912.....	18.5	16.2	16.5	13.2	20.7	18.2	26.7	20.0
1913.....	22.1	19.6	19.7	16.3	22.5	18.7	31.2	24.9
Average ¹	20.1	17.7	18.2	14.2	21.4	18.0	28.8	22.9

	Yield per acre, of—					
	Corn		Potatoes		Sugar beets	
	Large holdings	Small holdings	Large holdings	Small holdings	Large holdings	Small holdings
	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Short tons</i>	<i>Short tons</i>
1909.....	16.2	12.9	183.6	96.6	8.4	7.6
1910.....	23.9	20.4	184.6	138.8	11.2	9.1
1911.....	25.8	20.8	162.6	135.0	9.7	7.2
1912.....	24.4	19.6	141.4	120.9	8.8	9.5
1913.....	24.6	21.2	117.8	95.5	9.9	9.3
Average ¹	23.2	19.0	156.6	118.6	9.6	8.6

¹ Weighted average.

BESSARABIA

Similar conditions were prevalent in Bessarabia in regard to wheat, rye, oats, and corn, but barley and potatoes averaged higher yields per acre on peasant fields during 1909-1913 than on the large estates. As indicated in Table 17 there was a greater difference in yields of winter wheat in Bessarabia than was the case with spring wheat. The peasants and estate owners prepared the land for small spring grains in about the same way, but in the preparation of land for winter wheat there was a great difference in the method of procedure. The estate owner usually held his fields intended for wheat as summer fallow with frequent cultivation until time to seed in August. The peasants on the other hand followed the old Rumanian custom of sowing wheat in the cornfield and hoeing in the seed.

It is evident that one of the immediate effects of the land reforms has been a decrease in production because of the lower yields per acre obtained by peasant methods than were realized under the system of large-estate farming.

TABLE 17.—Cereals and potatoes: Average yields per acre on large estates and peasant holdings in Bessarabia, 1909-1913 (59, Ann. 10, p. 69)

Crop	Yields per acre, on—		Crop	Yields per acre, on—	
	Large estates	Peasant holdings		Large estates	Peasant holdings
	<i>Bushels</i>	<i>Bushels</i>		<i>Bushels</i>	<i>Bushels</i>
Wheat:					
Winter.....	16.7	12.7	Oats.....	35.5	28.0
Spring.....	14.9	11.1	Corn.....	22.9	17.7
Rye.....	18.4	14.6	Potatoes.....	87.6	100.3
Barley.....	11.4	18.4			

Agriculture in Bukovina under Austrian tutelage, and in Transylvania under Hungarian rule, although of a lower order than in central Europe was appreciably higher than that in the old Kingdom of Rumania and in Bessarabia. Yields per acre in these two northern administrative districts in 1925 were in some instances higher than before the World War and for all five cereals were more nearly representative of pre-war conditions than was the case in the old Kingdom and in Bessarabia.

Considering Rumania as a whole, the mean yields per acre in 1926 for oats, barley, and corn were somewhat above the 1909-1913 average, whereas the yields of wheat and rye were below that average. (Table 18.)

All things considered, it is probable that the land reform will have less effect upon areas seeded and yields per acre in the two northern administrative districts than in the south. In the south, the reduction in acreage of winter bread grains, the increased area of spring grains, as well as the generally lower yields per acre will continue to depress average annual production considerably below the normal levels indicated by the 1909-1913 averages.

Shifts in acreage and lower yields per acre are not the only factors that have tended to reduce the postwar exportable surpluses of Rumania. Two other factors are operating to reduce the quantities of cereals that Rumania may in the future ship to western Europe. These two factors are increases in human population with increased per capita consumption and increased use of cereal products for feeding livestock.

TABLE 18.—Cereals, potatoes, and sugar beets: Crop yields per acre in Rumania; average, 1909-1913, and annual, 1925-26

Crop and year	Old Kingdom ¹	Transylvania	Bessarabia	Bukovina	Rumania
Wheat:	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>
Average, 1909-1913.....	18.9	16.5	12.0	19.1	16.9
1925.....	14.2	17.7	4.3	17.4	12.8
1926.....	—	—	—	—	13.5
Rye:					
Average, 1909-1913.....	15.1	19.0	14.8	17.9	16.3
1925.....	12.3	17.0	5.6	18.8	12.0
1926.....	—	—	—	—	15.4
Total bread cereals—					
Average, 1909-1913.....	18.7	16.9	12.6	18.4	16.8
1925.....	14.1	17.6	4.4	18.0	12.8
1926.....	—	—	—	—	13.6
Barley:					
Average, 1909-1913.....	18.8	23.2	17.2	26.3	18.6
1925.....	14.8	21.5	4.1	18.2	11.1
1926.....	—	—	—	—	19.1
Oats:					
Average, 1909-1913.....	26.2	30.4	31.2	42.2	28.9
1925.....	18.6	30.0	3.9	29.7	17.4
1926.....	—	—	—	—	30.0
Corn:					
Average, 1909-1913.....	19.6	22.9	17.9	17.7	20.1
1925.....	17.8	21.1	8.8	26.9	16.9
1926.....	—	—	—	—	20.3
Total 5 chief cereals—					
Average, 1909-1913.....	19.7	21.2	16.1	25.5	19.3
1925.....	16.3	19.5	5.7	23.8	14.0
1926.....	—	—	—	—	18.8
Potatoes:					
Average, 1909-1913.....	130.1	103.4	102.4	156.6	119.1
1925.....	131.6	123.5	40.5	202.0	129.0
Sugar beets:					
Average, 1909-1913.....	Short tons	Short tons	Short tons	Short tons	Short tons
1925.....	9.3	11.3	2.5	9.2	9.8
1926.....	6.8	7.6	6.5	6.9	6.8

Calculated from Tables 19 and 24.

¹ Includes 1909-1912 average for Durgstor and Callacra.

As indicated in Table 19, the production of wheat and rye per 100 inhabitants in Rumania in 1926, although showing some improvement over that in 1925, was still 36.7 per cent below the 1909-1913 average, as contrasted with corn, which was about 5.1 per cent below; on the other hand, the production of barley was 2.3 per cent and that of oats 14.2 per cent higher than the pre-war normal.

TABLE 19.—Cereals, potatoes, and sugar beets: Production and acreage per 100 inhabitants¹ in Rumania; average, 1909-1913, and annual, 1925-26

Crop	Average, 1909-1913							
	Old Kingdom ²		Transylvania		Bessarabia		Bukovina	
	<i>Acres</i>	<i>Bushels</i>	<i>Acres</i>	<i>Bushels</i>	<i>Acres</i>	<i>Bushels</i>	<i>Acres</i>	<i>Bushels</i>
Wheat.....	67.2	1,270.9	46.1	758.8	72.3	864.7	6.0	113.8
Rye.....	4.6	68.6	5.9	116.9	20.7	306.2	8.3	149.3
Total.....	71.8	1,339.5	52.0	875.7	93.0	1,170.9	14.3	263.1
Barley.....	19.3	367.6	6.0	139.8	66.7	1,149.1	10.3	271.7
Oats.....	15.5	406.7	14.5	442.4	7.2	223.0	14.7	618.8
Corn.....	71.0	1,393.1	48.7	1,069.1	76.0	1,358.4	19.6	347.7
Total, 5 cereals.....	177.8	3,506.9	119.2	2,527.0	242.9	3,901.8	58.9	1,501.3
Potatoes.....	4	45.8	3.6	376.2	1.7	172.7	11.3	1,770.3
Sugar beets.....	<i>Acres</i>	<i>Tons</i>	<i>Acres</i>	<i>Tons</i>	<i>Acres</i>	<i>Tons</i>	<i>Acres</i>	<i>Tons</i>
	0.4	4.0	0.6	6.6	0.2	0.6	0.7	6.8

Crop	Rumania					
	Average, 1909-1913		1925		1926	
	<i>Acres</i>	<i>Bushels</i>	<i>Acres</i>	<i>Bushels</i>	<i>Acres</i>	<i>Bushels</i>
Wheat.....	37.9	993.1	37.4	698.4	37.1	531.2
Rye.....	7.7	123.8	3.9	46.4	4.2	64.4
Total.....	65.6	1,105.9	51.3	654.8	51.3	695.6
Barley.....	22.0	410.0	24.4	271.9	21.9	419.5
Oats.....	13.9	400.5	17.0	296.2	15.3	457.4
Corn.....	61.2	1,228.0	56.4	851.1	57.5	1,168.0
Total, 5 cereals.....	162.7	3,144.4	149.1	2,174.0	146.0	2,741.5
Potatoes.....	2.2	261.7	2.7	344.7		
Sugar beets.....	<i>Acres</i>	<i>Tons</i>	<i>Acres</i>	<i>Tons</i>	<i>Acres</i>	<i>Tons</i>
	0.5	4.5	0.9	6.3		8.0

¹ Calculated from Tables 15 and 20.

² For populations, see Table 21.

³ Includes 4-year average, 1909-1912, for Durostori and Calliacs.

COOPERATION¹⁵

Agricultural co-operation in Rumania started with the foundation of agricultural banks. The law of 1903 established a Central Office of Popular Banks which, two years later, absorbed the agricultural co-operative societies as well. This was a State institution for the purpose of controlling and financing the co-operative movement * * *. Its co-operative functions were allotted to three distinct sections, the Union of Popular Banks, the Union of Producers' and Consumers' Co-operative Societies, and the Union of Tenant and Agricultural Co-operative Associations. These institutions apply the principle of State collaboration in the co-operative movement. They possess independent capital

¹⁵ From Co-operative System in Agriculture, by L. Mladenitz, departmental manager, Union of Co-operative Societies, Rumania (24, p. 27).

and a legal identity. In 1921 and 1923 they were granted legal authority over co-operative societies in the new territories acquired by Rumania, but, except for Russian societies in Bessarabia, it was only those societies formed by Rumanian members which took advantage of this privilege. In the new provinces, therefore, there still exist independent organizations formed by minority races. This minority movement is well organized, though its numerical strength is less than that of the Rumanian movement * * *. The central organization now controls 1,400,000 members, while the minority groups only possess 300,000 members.

The credit-cooperative associations are the most important element. At the end of 1925 there were 4,207 banks with a membership of 886,745. There was a paid-up capital of 745,400,000 lei,¹⁶ or \$3,602,000, and a turnover of 6,930,000,000 lei, or \$33,486,000.

The tenant-cooperative system was strongly developed before the World War but has dwindled since the land reform. In 1926 there were only 129 societies, with 17,160 members working 135,275 acres.

The land reform also affected the land-purchasing cooperatives, which were originally introduced in 1905. In 1926 there were 312 such societies, with a membership of 29,075.

There has been a rapid growth of a rural system composed of so-called "cooperative societies for consumption, purchasing and communal marketing." Their function is to meet household requirements, to buy implements, seeds, and other farming necessities, to foster production by the communal use of large agricultural machinery, and to market the produce either immediately in bulk or after it is processed. There were 2,646 such societies in 1925. Of these, the 1,829 which reported in that year had 268,000 members, a paid-up capital and reserves of 150,000,000 lei,¹⁷ or \$724,800, and an annual turnover of 1,646,000,000 lei, or \$7,953,472.

The local cooperatives are organized into district unions or centralia and these again into a national union, with headquarters at Bucharest. The Union of Producers and Consumers Cooperative Societies aims at controlling and financing the commercial operations of the branch societies. It employs its own capital of 200,000,000 lei,¹⁸ or \$966,400, and the credits granted by the National Bank. It provided the branches with goods to the value of 110,000,000 lei, or \$531,520, in 1925, and sold for these societies goods to the value of 552,000,000 lei, or \$2,667,300.

Under the present system of peasant land ownership the prospect of future progress is particularly bright, for cooperative buying and selling is the only way to confer on small and medium landholders the advantages of large-scale operation.

HANDICAPS TO AGRICULTURAL PRODUCTION

The greater part of the lowlands of the old Kingdom of Rumania and Bessarabia possess soils of exceptional fertility, but these regions were formerly semiarid steppes, and until the last century were utilized chiefly as pasture lands. To-day crops in these regions are subject to the precarious conditions of extremes of precipitations and temperature. Spring and fall are of short duration. Summers are hot, droughts are frequent, and short, torrential rainstorms are followed by rapid evaporation. Under these conditions successful agriculture depends upon the prompt application of moisture-con-

¹⁶ The average value of the lei in 1925 was equivalent to 0.4832 cent.

¹⁷ See footnote 14.

servation methods. The large estates were fairly successful in this direction, but these peasants are ignorant of any but the simplest and crudest methods of plowing and sowing. Very few can read or write, and most of them are indolent. Nor can these handicaps be easily overcome. These peasants can not be taught through bulletins. A change under present conditions could be effected only through the organization of an enormous system of traveling instructors similar to the county agents of the United States and the establishment of demonstration fields among the peasant holdings. Education is being directed toward the training of agricultural leaders in secondary and higher schools, but it will be many years before practical results are attained.

In the hilly country and the mountainous regions the strip system of agriculture practically inhibits the application of modern methods of farming. It is at present almost impossible to remedy this situation.

FARM METHODS

Fall plowing in preparation for a spring crop is almost unknown among the Rumanian peasants and is but little used on estate lands. On the other hand, land is plowed in the fall for winter wheat which is seeded as late as Christmas time. The estates looked upon cultivated fallow as a new progressive step just before the World War, but the peasants seldom kept their fallow lands in tith. Almost all plowing by these peasants is haphazard with no reference to the conservation of moisture. It usually requires four oxen to plow the soil properly, and few of the peasants have even two oxen. Therefore two or more peasants must join forces to prepare their land, and this delays or hastens spring work too much. Very little plowing or seeding is done in a timely manner.

Plowing in general is too shallow. Usually land for corn is plowed 4.2 to 6.3 inches; and for wheat, rye, and barley even shallower—3.8 to 4.2 inches. Thorn harrows are still in common use. These consist of branches of thorn brush bound together, to which a horse is hitched and on which the peasant stands as it is dragged about the field. Harrows with wooden frames through which spikes have been driven seem to the peasant a very modern implement, but iron-frame or spring-tooth harrows are seldom seen.

Cultivators are seldom used, except occasionally in vineyards. Most cultivation is done with a heavy hoe which has a semicircular blade about 14 inches wide by 8 inches deep, sharp pointed at either side. The depth of hoeing usually exceeds that of the original plowing.

FERTILIZERS

From a rational point of view it might be said that the Rumanian peasant never fertilizes his fields. As few have stalls for cattle, manure lies scattered about the peasant yard. Usually this is taken up, mixed with straw, and molded in a plaque about the size of a pie. These plaques are plastered onto the side of the house to dry. When thoroughly dried they are used for fuel. Horse manure mixed with mud from the roadway is employed to plaster the walls both inside and outside the house.

Peasants are not allowed to let manure accumulate in piles in the village. When the village policeman considers a pile too large he

orders it removed, usually to some rutty place in the road where it temporarily aids traffic. To cart manure into a field to increase production is an almost unknown practice.

COMMUNICATIONS

There were 50,193 miles of wagon roads in Greater Rumania in 1924, or 0.4 mile per square mile. There was 0.5 mile of road per square mile of territory in the old Kingdom as compared with 0.4 mile in Transylvania, 0.2 mile in Bessarabia, and 0.3 mile in Bukovina.

The transportation system of the old Kingdom of Rumania has been constructed with the aim in view of transporting grain from all parts of the country to the Danube River for shipment to the export points, Braila, Galati, and Sulina. There are, including these three export points, 34 ports on the Danube, of which 12 are connected by rail with the interior of the country. At the end of 1925 there were 2,737 miles of railways in the old Kingdom, as compared with 3,483 miles in Transylvania, 750 miles in Bessarabia, and 457 miles in Bukovina.

The railroads of Transylvania were part of the old Hungarian system and center on Budapest, having little economic relationship to the old Kingdom of Rumania. The same in true, though to a less extent, of the Bessarabian system.

In all there are 7,427 miles of railway in Greater Rumania, or about 1 mile to each 15.3 square miles of territory as compared with 1 mile to each 24.4 square miles in Bulgaria, and 1 mile to each 8.3 square miles in France.

Rumania possesses 1,765 miles of navigable waterways, of which the Danube River and its tributaries represent 913 miles. The Dniester River, on the eastern frontier, affords cheap transport from Hotin for 460 miles south to Cetatea-Alba, on a bay of the Black Sea.

AGRICULTURAL TRADE

The administrative district of Transylvania lies west and north of the Carpathian and Transylvania Mountains and it is economically associated with central Europe. This region was part of the Vienna-Budapest commercial system before the World War, and its agricultural products, both raw and processed, were routed toward Austria, the territories now comprising Czechoslovakia, and toward Germany. The great flour mills of this region often imported wheat from the old Kingdom of Rumania, but seldom if ever did any of the farm products cross the mountains toward the south or east. On the other hand the trade of the old Kingdom of Rumania and Bessarabia is associated with western Europe by way of the Black Sea and the Mediterranean.

Agencies of commercial firms in Vienna, Prague, and Budapest buy up the superfluous farm products of Transylvania according to the system that was in vogue in the former Kingdom of Hungary before the World War. Small buyers in local market towns buy direct from peasants and transport their purchases usually by ox team to some market city situated on a railroad. Here the products are sold to an agent of some large firm in Hungary, Austria, or other country, who purchases only such quality of product as his clients require. These purchases are then exported. Other products are dumped on the domestic market for local consumption.

In the old Kingdom of Rumania and in Bessarabia, the system followed is similar to that in use in Transylvania except that there are established export houses with connections in western Europe who ship grain on sample. There are also Belgian and other nationals, who have manufacturing or other interests in Rumania and who buy up agricultural products with the earnings of enterprises. They export these products to their native countries as a surer means of transferring wealth than by cash transactions through banks. Milling and other western European interests also maintain agencies in Rumania to purchase products of the quality they require. Trade in the old Kingdom is typified by the way in which the wheat crop is moved.

✓ MOVING THE WHEAT CROP

Before the World War the old Kingdom of Rumania did not have enough freight cars¹⁸ to move the cereal crop the comparatively short distances between points of production and shipping points on the Danube. A number of cars were hired each fall from Germany. The present situation is acutely worse than that during pre-war days, as the rolling stock of the Kingdom, never sufficient, is inadequate to the task of moving the crop promptly to the Danube ports before the river freezes.

Before the war the bulk of the export wheat in the old Kingdom and in Bessarabia was produced upon large estates in lots of at least one and often of many carloads. This grain was of uniform quality, so that a buyer usually associated with some large bank, could arrange with one or more estate owners for the shipment of grain at a certain time. A train of empties would be placed at certain sidings, to which the great landlords would haul their grain in sacks. These sacks, of grain, of uniform weight, were then loaded into box cars or on flats. It was possible to transport grain within 24 hours from any railway point in the western part of the old Kingdom of Rumania to shipping points on the Danube. Here the grain was carried by hand up the gangplank and dumped into the hold of a river barge or seagoing vessel of small tonnage. Such cargoes were of fairly uniform quality and could be sold on the western European market on the basis of a sample furnished by the selling agent.

The present situation is entirely different. No large trainload or shipload lots of uniformly cleaned grain are now available. Each peasant brings his small surplus, say 2, 5, or 10 bushels, to the local market or to the nearest railway station. This grain is cleaned inadequately and always contains a high percentage of other grains and weed seeds. A small buyer meets the peasant and dickers for his grain. The bargaining consumes much time. As soon as the small buyer has assembled a carload (22,046 pounds) he takes it to the railway yards, where it is stacked in sacks and given an official number. Here it is officially or unofficially sampled. The buyer can usually finance only a single carload, which he consigns to some port. He then negotiates an advance from some bank on the basis of the bill of lading and the sample. Upon receipt of money from the bank he goes out and buys another carload. There are no country elevators.

¹⁸ Rumanian freight cars are small trucks with a capacity of 10 metric tons, or 22,046 pounds, each.

It is impossible for a carload of grain which has been purchased in small lots from many peasants to approach uniformity, so that Rumanian wheat, which before the war enjoyed a certain reputation, has lost much of its standing since the land reform came into operation. Western European buyers are naturally reluctant to handle Rumanian grain except as purchased through their own resident agencies. These agencies finance small local buyers through the sale of foreign drafts for local currency. This often glutts the limited money market with foreign drafts, thus increasing the value of the leu to such an extent as to wipe out the margin of profit on grain transactions, which automatically stops the purchase of export grain.

Stabilization of the currency will relieve this situation; but the awkwardness of assembling many small lots of grain for which actual cash must be paid, as compared with the former system of arranging for large consignments from estate owners whose accounts at their bankers were credited with the equivalent money value without local transfers of cash, has greatly increased the cost of grain transactions in Rumania. The deterioration in the quality of export grain has aroused the Government, and plans for grain standardization are being discussed. It is improbable that much can be accomplished in this direction for many years. There are elevators at Galati and Braila, but they have such small capacities and such low-grade equipment as to be practically negligible as far as grading up the export grain is concerned.

STATUS OF FIELD CROPS AND LIVESTOCK

The livestock situation in Greater Rumania is somewhat obscured by recent droughts in Bessarabia and the economic situations in Transylvania, but as G. Jonescu-Sisesti, Rumanian Minister of Agriculture and Domains, has pointed out, the land reform is bound to be followed by increased livestock production.¹⁹

The destruction of farm animals in the old Kingdom of Rumania during the World War was so heavy that the postwar recovery has been remarkable. The number of horses in 1926 was 1,002,000, as compared with the pre-war number of 895,000. Other classes of livestock in similar comparison were as follows: Cattle 2,529,000 in 1926, as against 2,851,000 before the World War; sheep, 7,691,000, as against 6,073,000; and swine, 1,551,000, as against 1,045,000. These increases in livestock are typical of the increased influence of the peasant system of farming upon the agriculture of the old Kingdom.

The pastures and meadows available to the small peasant farmer are generally held in common by the whole village community. Each peasant is entitled to graze a certain number of animals in proportion to the total area of his privately owned holdings. If he keeps no livestock he loses his chance to realize a benefit from the village commons. Therefore, according to his means, each peasant keeps at his small farmyard in the village and on his share of the village pasture lands a horse or an ox, a cow, and a calf or two, two or three pigs, three or four sheep, and some chickens. He has more domestic animals per acre than has the owner of an estate. His wife and

¹⁹ The importance of the cultivation of plants for forage becomes clearer day by day; the peasants breed numbers of cattle, and one result of the agrarian reform will certainly be a restriction of cereal cultivation, a growth of industrial and forage cultivation, and a development of breeding (30, p. 2).

children care for this livestock (their labor costing him nothing), and he has proportionately more rough feed of greater variety per acre than has the estate owner.

The tendency is to overstock, to crowd pasture rights to the limit, and generally to keep a few more animals than the normal roughage will maintain. This leads to an increased proportion of peasant land under fodder cereals and forage crops and a proportionately decreased seeding of marketable cereals—wheat and sometimes barley—as compared with the planting system employed on large estates.

The tendency to overstock in Bessarabia was as marked as in the old Kingdom up to 1924, when a crop failure in several departments was followed by the wholesale marketing of cattle and hogs. Bessarabia had not yet recovered, in 1926, from this great reduction in livestock numbers.

Transylvania is a country naturally adapted to livestock production. The industry was organized on a commercial basis before the World War. Large numbers of lean swine and cattle in considerable numbers were shipped each year from the Banat and from Crisana to the feed lots near Budapest and in the Hungarian countries west of the Danube. This industry has been handicapped by export taxes, and the demand for feeders has not been so sharp as in the pre-war days because of the slow recovery of the Vienna market. For these reasons the land reform has not been followed by as marked a trend toward increased livestock production in Transylvania as in the old Kingdom and in Bessarabia.

In the country as a whole, cereal production has tended to regain its pre-war status at a more rapid rate than has livestock. In 1926 the number of horses was 98.4 per cent of the pre-war average, the number of cattle 86.4 per cent, the number of sheep 122 per cent, and the number of swine 97.6 per cent of the pre-war average. Bread cereals in 1926 were 85.6 per cent of the pre-war average; whereas corn, oats, and barley were all above the 1909-1913 average. The fact that fodder cereals have increased and bread cereals have decreased indicates that a further expansion of the livestock industry may be awaited.

CEREAL PRODUCTION

The peasants and the owners of large estates exhibited marked differences in their preferences for certain cereals in their planting program. These preferences have undoubtedly had a marked influence upon the changes in areas seeded in greater Rumania to-day, as compared with the areas seeded in the 5-year period before the World War. But great as were these differences in preferences, shown in planting wheat or corn, the differences between the cultural methods employed by the peasants and those in use on the large estates were even greater.

METHODS OF AGRICULTURE

CORN

The most favored cereal in Greater Rumania is corn. Corn forms the basis of the diet of the peasants, who before the war ate wheat or rye bread only infrequently. In the old Kingdom of Rumania the early maturing varieties were favored because the large landowners

demanding that the fields be cleared as early as possible in preparation for the seeding of winter wheat. The varieties usually planted were as follows: Yellow flint, a native peasant corn that ripens in 150 days. It is the variety generally cultivated. Moldavian or Hangan, which ripens two weeks earlier than the yellow flint, but the yield is not usually so high. Pignoletto, a Hungarian variety. Szekely, a variety grown in the mountains and an early ripening corn. Cinquantino, a 50-day corn; an Italian variety with a small flinty kernel. It ripens early and ships well, and is in demand for export. The American varieties have not been developed to meet conditions in Rumania, and the varieties planted do not as a rule give as large returns of marketable grain as do the native varieties.

In the rotation of crops, corn usually alternates with wheat or some other cereal, but is often planted a second year on the same field. Planting takes place late in March or early in April. In Moldavia and Bessarabia the peasants sow corn broadcast upon the unplowed ground and then plow it under. When the corn thus sown is about 3 inches high and the weeds are still higher, the field is hoed with a semicircular hoe, the blade of which is about 14 inches broad by 6 or 8 inches deep. The weeds and superfluous corn are then hoed out, and the plants left standing are hilled. Sometimes the peasants hoe to a greater depth than they had originally plowed, thus severing the horizontal feeding roots and injuring the plants. This deep hoeing and hilling is repeated two or three times during the season. In harvesting, the stalks are cut off short with the hoe and thrown together in rough piles. These piles are often removed from the field too soon and consequently heat badly. Most of the peasants store corn in some sort of a crib; it is usually a basketlike affair made of woven saplings and thatched with straw.

The system of corn culture employed in other parts of Rumania is similar, with the exception that the corn is planted after the ground has been plowed. Even on large estates few corn planters are used. Holes are made with a pointed stick at regular distances from one another, and two or three kernels are dropped into each hole.

WHEAT

Several varieties of wheat have been developed in Rumania to meet the varied soil and climatic conditions of the country. Local varieties are generally favored, although in a few instances improved varieties of Russian, Hungarian, and German wheat have been sown. The winter varieties belong to *Triticum vulgare*; the spring varieties are durum. Two of the leading varieties of spring wheat are called, Armut, which is generally seeded in Dobruja, and Ghirka, which is sown to a greater or less extent in other parts of Rumania.

In rotation wheat usually follows corn, although sometimes it follows other grains. When corn is late in ripening, wheat often is broadcasted among the standing stalks, after which the field is hoed to turn the grain under. Otherwise fields are plowed shallow and are harrowed once before seeding. The peasants almost universally broadcast their wheat, but the large operators use the grain drill to a considerable extent. After seeding, the peasants harrow the fields once with a harrow of the brush type. On the large estates the grain is carefully cleaned and is sometimes sorted and treated for smut, but the peasants clean their grain only superficially.

Among the peasants it is a common practice to pasture the stock in the wheat fields during late fall and winter. In the spring they make little attempt to clean weeds from the fields. The grain is harvested in the full-ripe stage. The peasants, and even many of the large operators, cut grain with a sickle, but on some of the estates there are a few mowing machines, reapers, and binders. On the large estates the grain is bound into sheaves. The peasants sometimes follow this plan, but more often they merely rake the wheat together into cocks.

The peasants seldom use threshing machines of any description, the grain being trod out according to the ancient custom. A circular spot is carefully cleaned in a level place. In the center a tall stake is set up, and the ground is watered and trod until it is packed hard. When the threshing floor is dry and all the cracks are carefully filled, the sheaves are broken and scattered over it to a depth of a foot or more. Then horses, and sometimes cattle, are attached to the stake by a long halter and are driven around and around. When the halter has wound itself about the stake until the animals are drawn to the center of the floor, the animals are turned about and driven in the opposite direction. This process is repeated several times, while the straw is worked over with a fork. At the end, the straw is removed with a fork, and the animals are driven over the grain and chaff very slowly, to effect the final separation without forcing the kernels into the ground. Then the chaff and grain are swept to the center about the stake with a broom (a bundle of twigs bound together at one end). After this, more sheaves are spread about and the process is repeated.

The grain is separated from the chaff by being tossed into the air against the wind. A great deal of dirt becomes mixed with the wheat on the threshing floor, and this is cleaned out by means of a large sieve suspended from a tripod. At the end of the sifting process the screener gives the sieve a whirling motion which collects in the center a portion of the wild oats or other light grains which are always present. This collection is removed with the hands. The grain is then considered ready for marketing. Peasant grain must always be washed before it is milled.

The peasants have no satisfactory place to store their grain and, therefore, must market it as soon after threshing as possible. There is a little space under the thatched roof of their huts where a limited quantity may be kept, but usually they are forced to sell immediately, taking whatever price the buyers offer.

SMALL GRAIN OTHER THAN WHEAT

Other winter grain is seeded in the same manner as wheat. For spring seeding, the ground is prepared by shallow plowing in which the furrow is scarcely turned—the soil is merely shoved over the width of the crude plow bottom. The field is usually harrowed once; then the seed is broadcast and harrowed in. There is usually little or no selection or preparation of the seed. The varieties of rye and oats are locally developed strains. Brewing barley, was formerly imported from Germany and Austria-Hungary; the seed now used is of the same varieties as those formerly imported.

The general trend of peasant agriculture has been toward increased seeding of spring as opposed to winter grain; corn, barley, and oats

are preferred to wheat or rye. These shifts in trends of seeding have affected production in each of the various administrative districts now constituting Rumania somewhat differently, depending for the most part upon the relative importance that large estate farming had formerly assumed in the agriculture of each district. (Table 20.)

TABLE 20.—Cereals, potatoes, and sugar beets: Production in Rumania; average, 1909-1913, and annual, 1925 and 1926

[In thousands—i. e., 000 omitted]

Crop and year	Old Kingdom ¹	Transylvania	Bessarabia	Bukovina	Rumania
Wheat:	Bushels	Bushels	Bushels	Bushels	Bushels
Average, 1909-1913.....	83,794	39,828	21,533	916	156,071
1925.....	55,719	39,665	8,296	1,061	104,741
1926.....	.....	.....	.....	.....	110,882
Rye:	Bushels	Bushels	Bushels	Bushels	Bushels
Average, 1909-1913.....	5,066	6,134	7,635	1,292	20,027
1925.....	1,951	3,792	1,316	938	7,997
1926.....	.....	.....	.....	.....	11,243
Total bread cereals:	Bushels	Bushels	Bushels	Bushels	Bushels
Average, 1909-1913.....	88,860	45,962	29,168	2,118	176,098
1925.....	57,670	43,457	9,612	1,999	112,738
1926.....	.....	.....	.....	.....	122,125
Barley:	Bushels	Bushels	Bushels	Bushels	Bushels
Average, 1909-1913.....	27,133	7,340	28,638	2,187	65,284
1925.....	20,671	7,830	9,967	1,049	40,817
1926.....	.....	.....	.....	.....	73,220
Oats:	Bushels	Bushels	Bushels	Bushels	Bushels
Average, 1909-1913.....	30,019	23,221	5,552	4,980	63,772
1925.....	31,686	14,035	1,639	5,626	50,986
1926.....	.....	.....	.....	.....	79,850
Corn:	Bushels	Bushels	Bushels	Bushels	Bushels
Average, 1909-1913.....	102,619	56,110	33,598	2,798	195,555
1925.....	101,922	41,372	16,582	4,283	163,739
1926.....	.....	.....	.....	.....	203,367
Total five chief cereals:	Bushels	Bushels	Bushels	Bushels	Bushels
Average, 1909-1913.....	258,831	132,633	97,162	12,083	500,709
1925.....	221,329	108,694	34,800	10,937	374,280
1926.....	.....	.....	.....	.....	478,562
Potatoes:	Short tons	Short tons	Short tons	Short tons	Short tons
Average, 1909-1913.....	13,382	19,743	4,300	14,243	41,673
1925.....	13,139	22,569	13,569	24,093	59,351
1926.....	.....	.....	.....	.....	.....
Sugar beets:	Short tons	Short tons	Short tons	Short tons	Short tons
Average, 1909-1913.....	286	349	14	55	716
1925.....	515	197	226	151	1,089
1926.....	.....	.....	.....	.....	1,391

Production in 1909-1913 in the old Kingdom of Rumania, (57, 1913); that in Transylvania, calculated (10); that in Bessarabia (59, Ann. 8, 10); that in Bukovina, cereals and potatoes (27) and sugar beets (1). Production in 1925 from (58, 1925); and production in 1926 (preliminary), from official sources of U. S. Department of Agriculture, Bureau of Agricultural Economics.

¹ Includes Durostor and Calliacra, 1909-1912, calculated from data in (9).

² In addition to this 1,188,000 bushels of potatoes were grown with corn. In addition, 357,000 bushels of potatoes were grown with corn in the old Kingdom, 1,901,000 bushels in Transylvania, 109,000 bushels in Bessarabia, 160,000 bushels in Bukovina, and 3,027,000 bushels in total Rumania.

WHEAT

Before the war the old Kingdom of Rumania exported (net) 54,434,000 bushels of wheat as grain or flour, representing 72.1 per cent of the net production. This large percentage of the crop available for export was possible only because wheat formed such a small portion of the cereal diet of the masses of the population. The peasantry of the old Kingdom are essentially corn eaters, consuming as human food and feeding to livestock an average of 12.2 bushels per capita per year. The peasant consumption of wheat is almost negligible; it amounts to about one-fourth of a bushel (0.26 bushel)

per capita per year. City dwellers on the other hand (except peasant-farmers' families and other classes of the very poor) consume practically no corn.

It is estimated that the consumption of wheat in cities averages about 15.5 ²⁰ bushels per capita per year. The low rate of rural consumption accounts for the low mean disappearance of wheat in the old Kingdom, which averaged 2.97 bushels per capita annually before the World War. As indicated in Table 21, the average per capita disappearance of wheat in Bessarabia and Bukovina, although somewhat greater than that in the old Kingdom, is relatively low because the cereal diet of the masses of the population, just as in the old Kingdom, consists chiefly of corn.

TABLE 21.—Wheat: Statistical balances of Rumania; average, 1909-1913, and annual, 1921-22 to 1926-27

District	Population ¹	Acreage	Seed	Production		Disappearance		Exportable surplus
				Gross	Net	Statistical	Per capita	
Pre-war average 1909-1913:								
Old Kingdom of Rumania ²	Number 7,100,124	1,000 4,576	1,000 112,263	1,000 87,702	1,000 75,529	1,000 21,005	Bushels 2.97	1,000 54,434
Transylvania ³	5,248,322	2,417	7,178	30,828	32,650	26,977	1.54	5,673
Bessarabia ⁴	2,480,230	1,801	13,424	21,533	18,109	18,366	3.36	9,745
Bukovina ⁵	894,822	48	144	916	772	2,704	3.36	1,632
Durostor and Caliacra ⁶	286,270	385	1,227	6,002	4,775	1,421	5.07	3,354
Total	15,923,998	9,227	24,236	156,071	131,835	60,563	3.80	71,272
Post-war period: ⁷								
1921-22	16,253,000	8,149	16,172	78,563	62,391	58,897	3.62	3,494
1922-23	16,500,000	8,547	17,219	92,007	74,788	73,195	4.44	1,593
1923-24	16,736,000	8,643	17,471	102,130	84,649	78,829	4.53	8,830
1924-25	16,976,000	7,838	20,514	70,420	40,995	46,097	2.75	3,100
1925-26	17,216,000	8,106	21,450	101,741	83,291	73,498	4.27	9,793
Average 1921-22 to 1925-26	16,736,000	7,907	18,585	80,570	70,985	65,623	3.92	5,362
1926-27	17,456,000	8,223	21,620	110,882	89,256	—	—	—

¹ Population, old Kingdom of Rumania, 1909-1913 (32, 1923, p. 10); Transylvania, 1910 (34, 1924, p. 15); Bessarabia, 1911, from Yuroski, (38, 74, p. 67); Bukovina, 1916, (36, 1925, p. 15); Durostor and Caliacra, 1910, calculated from (5); and Rumania, 1921, 1922, and 1923, (36, 1924, p. 10); and that for 1924, 1925, and 1926, estimated.

² Acreage and production (31, 1914).

³ 2.58 bushels per acre. (Estimate by Rumanian Department of Agriculture.)

⁴ Net exports of wheat, including wheat flour, for years beginning Aug. 1 (17, 1924-25).

⁵ Acreage and production calculated from (16, 24, 17-21).

⁶ Estimate by Royal Hungarian Ministry of Agriculture, 2.97 bushels per acre. (25, p. 15).

⁷ (25, p. 15).

⁸ Acreage and production, (39, Ann. 10).

⁹ Seed for 1911, from Yuroski, (38, 74, p. 67; pt. 2, p. 207).

¹⁰ Estimated from 1902-1911 average given in (4). Area, 1,039 acres; production, 21,060,000 bushels; food requirement, 8,560,000 bushels; exported by rail and water, 9,355,000 bushels.

¹¹ Acreage, production, and seed (27, 1921).

¹² Same as for Bessarabia.

¹³ Deficit.

¹⁴ Acreage and production for 1909-1912, calculated from (9).

¹⁵ 3.187 bushels per acre; same as Bulgaria.

¹⁶ Estimated to be the same as Bulgaria, 1912 boundaries.

¹⁷ Acreage and production 1921 to 1926 from official records of the U. S. Department of Agriculture, Bureau of Agricultural Economics.

¹⁸ 2.63 bushels per acre used for 1921 to 1926, as indicated in pre-war average.

¹⁹ Net exports of wheat, including wheat flour, for years beginning Aug. 1 (17, 1924-27).

The fact that the Bulgarian inhabitants of Durostor and Caliacra, as well as the German and Hungarian peoples in Transylvania, are

²⁰ This average includes all city dwellers of all classes. The better classes ate more wheat than this average.

wheat eaters raises the per capita disappearance to about 5.07 bushels in the former district and to about 5.14 bushels in the latter.

Thus, with an estimated net production of 131,835,000 bushels, the pre-war statistical disappearance of wheat in the territories that now are comprised within the boundaries of Rumania averaged approximately 60,563,000, or 3.8 bushels per capita. This left 71,272,000 bushels or 54.1 per cent of the net production as the estimated exportable surplus.

In 1921 the wheat acreage of Rumania was 66.6 per cent of the 1909-1913 average. Since then, until the time this report was written, the recovery of wheat acreage has been continuous each year. In 1924, following the abolishment of the Government monopoly for the exportation of wheat and rye, wheat acreage jumped 1,195,000 acres. In 1925 it rose an additional 318,000 acres. Preliminary reports for 1926 indicate a further slight advance of 67,000 acres. Nevertheless the Rumanian wheat acreage in 1926 was still 10.9 per cent below the pre-war normal. It is probable that this 8,223,000 acres planted in 1926 is the level about which future wheat acreage will fluctuate for some time.²¹ It is highly improbable under the system of peasant farming now established in Rumania that wheat acreage will return to the pre-war level maintained under the former influence of large-estate agriculture.

Between 1921 and 1926 wheat yields fluctuated from 9 to 15 bushels per acre, as compared with an average of 16.9 bushels per acre during the 5-year period ended 1913. Seasonal fluctuations, particularly the succession of droughts in Bessarabia, have affected this mean yield per acre. During a series of years the extremes of such fluctuations, caused by climatic influences, will average out; but there are other influences of a lasting nature that have affected the yield per acre in Greater Rumania.

The average yield of winter wheat in Bessarabia during 1909-1913 was 12.7 bushels, as compared with 16.7 bushels obtained under the conditions of large-estate farming, a difference of 4 bushels per acre. The peasant fields in old Rumania averaged 2.4 bushels of wheat less per acre than did those of the large estates. It is not only probable that the areas seeded to wheat will not return to the normal pre-war levels, but it is certain that present peasant methods of agriculture can not produce the results that were obtained on the large estates. A radical change in peasant farm methods would have to be effected to accomplish this end. Thus the reduction in the exportable surplus, which results from lower yields per acre, will continue for many years.

During the 5-year period ended 1925 the disappearance of wheat averaged 65,623,000 bushels, as contrasted with 60,563,000 bushels, estimated to be the average annual disappearance during 1909-1913. In the first instance the higher wheat disappearance is unquestionably associated with increased population, which averaged 16,736,600 during the postwar period under consideration, whereas official estimates place the pre-war population of the territories comprising Greater Rumania at 15,923,938. On the other hand the average per capita disappearance of wheat has increased from 3.8 bushels annually during 1909-1913 to 3.92 bushels during 1921-1925. Statistical disappearance during 1923-24 even reached

²¹ Preliminary figures for 1927 indicate a drop of 560,000 acres, to a total of 7,663,000 acres.

4.53 bushels per capita. This increased per capita disappearance indicates a higher standard of living, particularly in the rural districts. The Rumanian peasants, who formerly consumed only a fraction of a bushel per capita each year are eating more wheat, whereas city populations have been forced to restrict their wheat consumption. Thus, in February, 1925, Article IV of the New Regime of Wheat, Flour, and Bread states (29):

The mayoralties of urban communes are authorized to fix, if required, weekly days, during which the production of bread of any kind shall be prohibited, the populace during these days shall have to feed with maize flour.

The advanced standard of living adopted by the Rumanian peasants is an established fact. It will be impracticable to restrict their wheat consumption by official proclamation. Only a very slightly increased consumption per capita in rural districts will practically wipe out the exportable surplus now produced.

Taking into consideration decreased wheat areas, decreased yields per acre, increased population, and increased consumption per capita, which are all factors of greater or less permanence, it is improbable that Rumania can, for many years, regain the wheat-exporting status attained during 1909-1913.

FLOUR MILLING

There is a grist mill in practically every village. As is generally the case throughout central Europe, most of these mills are small, primitive wind or water mills. There may be several of these small mills in a single village. It is estimated that more than 7,000 such mills are operating in Rumania. In the Dobruja, the Banat, and a few other localities they are fitted to grind wheat and rye; but in Transylvania, in most of the old Kingdom, and in Bessarabia, the small village mill is equipped to grind corn only for peasant use, since in hundreds of localities there was formerly almost no demand for wheat flour except upon Easter and a few other church holidays.

Many large estates operate fair-sized mills driven by oil, steam, or gas engines, which grind a flour of fair quality for local consumption. These mills, although doing a large custom business, are only semicommercial in character.

Several hundred large commercial mills produce flour of various grades for domestic use and specialized grades for export. In the western part of the old Kingdom the wheat is soft and the flour is of mediocre quality, but Bucharest is a large milling center, and there are also several large mills in the western mountain and Danube districts. The hard wheats of Moldavia and Dobruja produce first-class flour. There are large mills at Galati, Braila, Constanta, and Sulina. These four mills produce a large part of the total export flour of the old Kingdom, of which 65,281 short tons were shipped to Turkey in 1913; 33,582 short tons to Egypt; and 11,990 short tons to Greece.

The flour produced from the hard Bessarabian wheat at the Kogan mills of Chisinau was equal to the best Hungarian grades. There were mills at each of the county seats in this administrative district which shipped large quantities of flour to the interior of Russia before the World War.

There were four milling centers in Bukovina, the most important being at Cernauti. These mills utilized wheat imported from the old Kingdom of Rumania and Bessarabia; they ground flour for domestic consumption and some for export to Galicia (now part of Poland).

There were 21 commercial mills in the Seven Mountain district in Transylvania in 1913. The largest of these mills, located at Alba-Julia, Odorhei, and Cluj, produced flour almost exclusively for domestic use. There were 39 mills in the Banat and Crisana in 1913, the largest centers being at Oradea-Mare, Arad, Deta, Timisoara, and Oravita. The product of these mills, which is of very high grade, was shipped to the interior of the Austro-Hungarian Empire and to central Europe, in competition with Budapest brands of flour.

The pre-war capacity of the mills, both large commercial and small village enterprises, in the present administrative district of Transylvania, was large enough to handle all of the wheat required for domestic consumption, estimated at 26,977,000 bushels. The old Kingdom of Rumania shipped annually 4,001,000 bushels of wheat across the Transylvanian Alps and the Carpathian Mountains to Austria-Hungary during 1909-1913. It is possible that some of this wheat may have found its way to the mills located in present Czechoslovakia but it is more than probable that most of the importation from Rumania was ground at the large commercial mills in the Seven Mountain district, the Banat, and Crisana and was forwarded to central Europe as flour rather than as grain.

Before the World War the large commercial mills in Greater Rumania and the hundreds²² of small village mills ground 60,563,000 bushels of wheat for domestic consumption. In addition, the mills of the old Kingdom ground an average of 3,264,000 bushels of wheat exported annually as flour, and the Transylvanian mills ground probably more than 5,673,000 bushels for export. It is not possible to estimate the wheat equivalents of the export flour produced in Bessarabia, Bukovina, of the territories acquired from Bulgaria.

The export of wheat flour as a private enterprise was prohibited from 1921 until November 24, 1923, at which time a decision was published permitting its export upon payment of a tax of 3,500 lei per metric ton (2,204.6 pounds), equivalent to \$15.88²³ per short ton.

But the millers were unable to take advantage of the provisions of the decision to the fullest extent because the exportation of wheat was also permitted with a relatively much lower tax (see p. 9). As the mills in Hungary were able to buy Rumanian wheat at a figure considerably less than that the Banat mills had previously paid, the latter had great difficulty in competing for their former markets in Czechoslovakia and Austria. The mills in Transylvania will have to contend with this situation unless they are protected by special legislation, because buyers from foreign countries who have agencies in Rumania will continually attempt to gain control of such classes of wheat as are required by the millers of their respective countries.

The mills of Rumania, in 1926, were equipped to grind probably the entire net production of the Kingdom amounting to nearly 90,000,000

²² There were 475 commercial mills and 7,000 small village mills operating in Greater Rumania in 1919.

²³ In November, 1923, the Rumanian lei was equal to 0.5 cent.

bushels, but will now have difficulty in assembling the amount of first-class wheat they require because of the activities of foreign buyers. The proximity of the surplus-producing districts to the Danube and the pre-war customs of the grain trade make it easier to export wheat as grain than in the form of flour. Most of the wheat flour exported in 1923 was shipped to Switzerland, Hungary, Austria, and Czechoslovakia. Smaller shipments were made to Turkey, Germany, and Greece.

It is probable that there will be some improvement in wheat acreage in Greater Rumania and, when seasonal fluctuations are favorable, that production will rise even higher than in 1926. On the other hand, the quality of the product is lower, and more grain than formerly is used in supplying the domestic requirements of flour. With an increasing population and an increasing per capita consumption of wheat bread, all probabilities point toward far lower exportable surpluses in Greater Rumania than were shipped by these districts to other regions before the World War.

As indicated in Table 22, Austria was the chief customer for Rumanian wheat and wheat flour in 1923, followed by Switzerland, Hungary, and France.

TABLE 22.—Wheat, including wheat flour: Net exports of the old Kingdom of Rumania, calendar years, average, 1909–1913, and of Greater Rumania, 1923 (35)

Country to which exported	Average 1909–1913	1923 ¹	Country to which exported	Average 1909–1913	1923 ¹
	<i>Bushels</i>	<i>Bushels</i>		<i>Bushels</i>	<i>Bushels</i>
Austria.....	4,239,965	713,832	Italy.....	7,800,179	102
Hungary.....	22,807,743	515,907	Poland.....	10,596	3,662
Belgium.....	726,001	107,664	Portugal.....	4,615	(²)
Bulgaria.....		115	Russia.....	12,249	42
Czechoslovakia.....		19,931	Serbia.....	553,223	8,879
Egypt.....	881,159	(³)	Spain.....	2,126	550,832
France.....	1,450,807	41,289	Switzerland.....	2,421,330	30,838
Germany.....	3,583,509	284,406	Turkey.....	251,398	34,555
Gibraltar.....	1,194,172	54,732	Other countries.....		
Greece.....	1,552,021	33,589	Total.....	62,192,296	2,498,130
Holland.....	156,553	29,083			
	5,217,622	8,336			

¹ 1923 is the only postwar year for which data are available by countries.

² Net imports.

³ If any, included in other countries.

⁴ Net imports for Yugoslavia.

RYE

Before the World War the old Kingdom of Rumania exported (net) 2,967,000 bushels of rye, whereas the total estimated exportable surplus of those territories that now form Greater Rumania approximated 8,379,000 bushels. Rye was not an important cereal crop except in Bukovina and, as compared with wheat, the domestic disappearance of rye was low, averaging before the war only about half a bushel per capita. (Table 23.)

TABLE 23.—Rye: Statistical balances of Greater Rumania, average, 1909–1913, and annual, 1921–22 to 1926–27

District	Acreage	Seed	Production		Disappearance		Exportable surplus
			Gross	Net	Statistical	Per capita	
	<i>1,000 acres</i>	<i>1,000 bushels</i>	<i>1,000 bushels</i>	<i>1,000 bushels</i>	<i>1,000 bushels</i>	<i>Bushels</i>	<i>1,000 bushels</i>
Pre-war average, 1909–1913:							
Old Kingdom of Rumania.....	316	1,831	4,632	3,821	8.54	0.12	12,967
Transylvania.....	308	1,956	6,134	5,198	4.146	1.79	1,032
Bessarabia.....	516	1,108	7,625	6,517	11.216	.97	4,101
Bukovina.....	67	212	1,252	960	7.81	11.08	309
Durostor and Caliscra.....	20	61	414	353	303		50
Total Greater Rumania.....	1,227	3,148	20,027	16,879	8,500	.53	8,379
Post war period: ¹							
1921–22.....	795	2,943	9,081	7,638	5,826	.36	1,212
1922–23.....	659	1,694	9,206	7,512	7,463	.45	1,119
1923–24.....	668	1,717	9,607	7,890	6,679	.40	1,214
1924–25.....	671	1,724	5,963	4,239	3,812	.22	1,427
1925–26.....	668	1,717	7,997	6,280	6,160	.36	1,120
Average, 1921–22 to 1925–26.....	692	1,779	8,371	6,692	5,994	.36	898
1926–27.....	731	1,879	11,243	9,364			

¹ See Table 21 on wheat for populations.

² See note 2, Table 21.

³ 2.63 bushels per acre. (17, 1913–14, p. 777).

⁴ Net exports of rye, including rye flour, for years beginning Aug. 1 (17, 1925–26).

⁵ See note 5, Table 21.

⁶ 3.04 bushels per acre. Estimated by Royal Hungarian Ministry of Agriculture (25, p. 16).

⁷ (25, p. 16).

⁸ See note 8, Table 21.

⁹ See note 9, Table 21.

¹⁰ Estimated from 1902–1911 average given in (1). Area, 522,000 acres; production, 7,023,000 bushels; seed, 1,086,000 bushels; food requirement, 2,416,000 bushels; export, 3,521,000 bushels.

¹¹ See note 11, Table 21.

¹² Same rate as in Bessarabia.

¹³ See note 14, Table 21.

¹⁴ 3.042 bushels per acre, same as Bulgaria.

¹⁵ Same rate as Bulgaria 1912 boundaries.

¹⁶ See note 17, Table 21.

¹⁷ 2.57 bushels per acre used for 1921 to 1926 as indicated in pre-war average.

¹⁸ Net exports of rye, including rye flour, for years beginning Aug. 1 (17, 1924, p. 27).

In 1921, the rye acreage of Greater Rumania was 64.8 per cent of the estimated pre-war average for the territories comprising the present Kingdom. Since then, acreage of rye has fluctuated considerably, with a downward tendency, and in 1926 only 731,000 acres were seeded, as contrasted with 1,227,000 acres before the World War.

Rye was the least important of the five chief cereals before the war in all districts except Bukovina, where its acreage exceeded that of wheat during 1909–1913, and in Bessarabia, where its acreage exceeded that of oats. Since the organization of Greater Rumania rye cultivation has taken a subordinate place even in Bukovina and Bessarabia.

Before the World War, about 8,500,000 bushels of rye, or 0.53 bushel per capita, was consumed annually in the districts which now comprise Greater Rumania. During the period 1921–1925, total disappearance of rye averaged 5,994,000 bushels, or 0.36 bushel per capita.

Although per capita consumption has decreased, production has fallen off to a much greater degree, so that average net exports of rye during the 5-year period ended 1925 were only 598,000 bushels, or about 7.1 per cent of the estimated pre-war rye surplus, which approximated 8,379,000 bushels annually during 1909–1913.

There has been a strong trend toward the abandonment of rye in recent years not only in Rumania but generally throughout the Danube Basin except in Hungary. It is therefore improbable that rye acreage in Rumania will recover its pre-war level. It is also practically certain that yields per acre will continue to average lower than the pre-war averages. Domestic consumption will probably rise somewhat higher than the low levels indicated by the 1921-1925 average. For these reasons future exportation of rye from Greater Rumania will probably be negligible. (Table 24.)

TABLE 24.—*Rye, including rye flour: Net exports of the old Kingdom of Rumania, average, 1909-1913, and of Greater Rumania, 1923 (35)*

Country to which exported	Average 1909-1913	1923 ¹	Country to which exported	Average 1909-1913	1923 ¹
	<i>Bushels</i>	<i>Bushels</i>		<i>Bushels</i>	<i>Bushels</i>
Austria.....	47,023	108,834	Italy.....	101,225	.....
Hungary.....	.....	36,024	Norway.....	40,129	.....
Belgium.....	1,493,742	134,838	Poland.....	.....	1,240
Czechoslovakia.....	.....	3,105	Russia.....	34,946	.....
Denmark.....	19,985	.....	Spain.....	5,545	.....
England.....	162,029	12,539	Turkey.....	18,281	.....
France.....	85,007	9,448	Other countries.....	34,702	.....
Germany.....	96,226	.....	Total.....	3,519,178	407,190
Gibraltar.....	2,358	77,067			
Holland.....	1,440,867	14,647			

¹ 1923 is the only post-war year for which data are available by countries.

² Net imports.

Before the World War Belgium and Holland purchased almost the entire exported surplus of rye from the old Kingdom of Rumania. In 1923 Belgium and Austria were Rumania's best rye customers, followed by Gibraltar. (Table 24.)

BARLEY

One of the striking series of changes in cereal acreages since the World War has been that of barley. During the 1909-1913 period the territories now comprising Greater Rumania seeded annually an average of 3,502,000 acres to barley. In 1921 the area under barley jumped to 3,878,000 acres and continued to increase until 1923, when it was 1,140,000 acres above the pre-war average. (Table 25.)

The domestic sale and exportation of barley have been hampered to a less degree than the domestic sale and exportation of wheat, and this has naturally had a favorable effect upon barley cultivation. Nevertheless the chief factors associated with increased barley acreages have been those attending the land reform.

TABLE 25.—*Barley: Statistical balances of Greater Rumania; average, 1909-1913, and annual, 1921-22 to 1926-27.*

District	Acreage	Seed	Production		Disappearance		Exportable surplus
			Gross	Net	Statistical	Per capita ¹	
	<i>1,000 acres</i>	<i>1,000 bushels</i>	<i>1,000 bushels</i>	<i>1,000 bushels</i>	<i>1,000 bushels</i>	<i>Bushels</i>	<i>1,000 bushels</i>
Pre-war average, 1909-1913:							
Old Kingdom of Rumania ²	1,319	13,693	24,387	21,307	4,566	0.64	16,741
Transylvania.....	317	3,919	7,340	6,421	1,819	1.61	2,005
Bessarabia.....	1,661	16,485	28,624	25,139	3,485	3.26	17,013
Bukovina.....	123	1,224	2,187	1,963	2,624	1.36	1,661
Durostor and Caliacra.....	122	1,381	2,146	1,765	528	1.85	1,247
Total, present Rumania.....	3,562	35,689	65,284	56,595	10,912	1.02	32,324
Post-war period: ³							
1921-22.....	3,878	38,617	44,254	34,637	19,215	1.18	15,422
1922-23.....	4,209	40,587	53,778	43,191	43,084	2.61	40,107
1923-24.....	4,642	41,512	60,870	49,358	28,166	1.68	21,192
1924-25.....	4,573	41,341	30,759	19,418	11,845	.70	7,533
1925-26.....	4,211	40,443	46,817	36,374	23,758	1.38	12,616
Average 1921-22 to 1925-26.....	4,315	40,700	55,296	44,596	25,222	1.51	19,374
1926-27.....	3,834	38,508	77,390	67,882	.....	.....	.....

¹ See Table 21 on wheat, for populations.

² See note 2, Table 21.

³ 2.70 bushels per acre. (17, 1915-14, p. 787).

⁴ Net exports for years beginning Aug. 1 (17, 1925-26).

⁵ See note 5, Table 21.

⁶ 2.90 bushels per acre. Estimated by the Royal Hungarian Ministry of Agriculture (25, p. 82).

⁷ Estimated domestic requirement (25, p. 22, Table 19).

⁸ Deficit.

⁹ See note 8, Table 21.

¹⁰ Seed for 1911 from Yurojal (58, Pt. D).

¹¹ Estimated from the 1902-1911 average given in (4). Area, 1,318,000 acres; production, 19,851,000 bushels; disappearance, 8,126,000 bushels; export, 8,839,000 bushels.

¹² Acreage and production (27, 1921).

¹³ 2.7 bushels per acre. Estimated to be the same as Hotin Uyezd in Russia, from Yurojal (58, Pt. D).

¹⁴ Estimated to be the same as Bessarabia.

¹⁵ See note 14, Table 21.

¹⁶ 3.122 bushels per acre; same as Bulgaria.

¹⁷ Estimated to be the same as Bulgaria, 1912 boundaries.

¹⁸ See note 17, Table 21.

¹⁹ 2.48 bushels per acre used for 1921 to 1926, as indicated in pre-war average.

²⁰ Net exports of barley for years beginning Aug. 1 (17, 1924, p. 27).

During the period of assignment the peasants were usually given their allotments of land in the fall or winter after the previous crop had been removed. They planted their new holdings the following spring.²⁴ The peasants were unaccustomed to planting spring wheat, the seed of which was not available in large quantities except perhaps in Bessarabia. Therefore, each peasant seeded his newly acquired holdings with whatever other spring grain he found at hand—corn, oats, or barley.

The transfers of lands to the peasants were practically concluded by 1926, when only a few hundred acres remained unallotted or in process of adjustment. The peasants will thus no longer be faced with the problem of having land to seed, with no plan as to what to plant. The areas seeded to various cereals are assuming proportions governed by the agricultural habits of the peasants, and estates as modified from year to year by the current economic conditions.

There is no brewing industry of importance south or east of the Carpathian-Transylvanian Ranges of mountains, nor is barley fed

²⁴ In 1922 the peasants seeded 3,743,000 acres more than in 1921 and the following year an additional 2,181,000 acres. These increases in peasant seedings continued yearly until 1925.

to livestock in any appreciable quantities in the old Kingdom, in Bessarabia, or in Bukovina. Corn rather than barley is fed to livestock, particularly to hogs, in Transylvania. But it is probable that with larger areas put under barley from year to year, and with cheaper barley supplies available, this cereal may be utilized more in livestock production in the future than it has been in the past, but it is more than probable that increased production of barley will be accompanied by increased exportation as well as increased internal disappearance.

As indicated in Table 25, the 1926 production has been placed at 77,390,000 bushels. If the per capita disappearance is assumed to be at least equal to that of 1925, the total disappearance, including seed, in greater Rumania during 1926-27 should be not less than 33,597,000 bushels. This would release about 43,793,000 bushels for export. It is improbable that all of this large quantity of barley will be sent abroad. Some of the surplus may be fed to livestock, although the amount that might be thus utilized is uncertain.

Before the World War, Belgium was the leading barley customer of the old Kingdom of Rumania, followed by Holland, England, and Germany. In 1923 Rumania exported 37,875,909 bushels of barley, of which 14,484,000 bushels went to Belgium, 7,041,000 bushels to Germany, 4,079,000 bushels to France, 3,443,000 bushels to Gibraltar, 1,975,000 to Greece, 1,700,000 bushels to Holland, 1,016,000 to Austria, and smaller quantities to other countries. (Table 26.)

TABLE 26.—Barley, including malt: Net exports of the old Kingdom of Rumania, average, 1909-1913, and of Greater Rumania, 1923 (35)

Country to which exported	Average 1909-1913	1923 ¹	Country to which exported	Average 1909-1913	1923 ¹
	<i>Bushels</i>	<i>Bushels</i>		<i>Bushels</i>	<i>Bushels</i>
Austria.....	476,986	1,016,438	Italy.....	361,701	133,740
Hungary.....	7,220,767	54,089	Norway.....	10,774	13,995
Belgium.....	41,466	14,484,247	Poland.....	114,110	61,822
Bulgaria.....	31,257	10,968	Russia.....	29,364	18,600
Czechoslovakia.....	31,257	10,968	Serbia.....	3,730	28,732
Denmark.....	31,257	10,968	Spain.....	7,330	10,104
Egypt.....	31,257	10,968	Sweden.....	7,330	10,104
England.....	2,600,885	881,735	Switzerland.....	562,324	342,887
France.....	182,010	4,079,250	Turkey.....	13,747	2,118,888
Germany.....	1,323,768	7,040,969	Other countries.....		
Greece.....	11,828	1,975,308			
Gibraltar.....	728,314	3,443,373	Total.....	16,319,651	37,875,909
Holland.....	2,688,704	1,699,941			

¹ 1923 is the only postwar year for which data are available by countries.

² If any, included in other countries.

³ Net imports.

⁴ For Ukraine only.

⁵ For Yugoslavia.

OATS

Before the World War the old Kingdom of Rumania exported (net) 10,421,000 bushels of oats annually. Each of the other administrative districts now comprising Greater Rumania, except Durostor and Caliacra, also produced surpluses of oats, bringing the total up to 18,426,000 bushels. Net production averaged 55,361,000 bushels, leaving 36,935,000 bushels or 19.37 bushels per horse, available for domestic use, as indicated in Table 27.

TABLE 27.—Oats: Statistical balances of Greater Rumania, average, 1909-1913, and annual, 1921-22 to 1926-27

District	Acreage	Seed	Production		Disappearance		Exportable surplus
			Gross	Net	Statistical	Per head of horses	
	1,000 acres	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	Bushels	1,000 bushels
Pre-war average, 1909-1913:							
Old Kingdom of Rumania ¹	1,103	3,702	29,047	25,345	14,924	18.00	10,421
Transylvania ²	763	3,319	25,221	19,912	10,845	32.90	3,037
Bessarabia ³	178	1,691	5,552	4,861	3,495	8.11	1,366
Bukovina ⁴	118	956	4,980	4,454	568	8.11	3,886
Durostor and Caliacra ⁵	42	173	972	799	1,103	13.75	7-301
Total, Greater Rumania.....	2,206	8,411	63,772	55,361	36,935	19.37	18,426
Post-war period: ⁶							
1921-22.....	3,092	11,672	66,356	54,684	42,092	24.95	12,592
1922-23.....	3,295	12,561	92,073	79,512	58,710	32.98	20,802
1923-24.....	3,324	12,671	62,665	49,994	46,315	23.54	3,679
1924-25.....	3,586	11,649	42,013	39,364	25,240	13.68	5,124
1925-26.....	2,928	11,162	50,986	39,821	38,094	20.90	1,730
Average, 1921-22 to 1925-26.....	3,133	11,943	62,819	50,876	42,091	23.45	8,785
1926-27.....	2,665	10,159	79,850	69,691			

¹ See Table 37 for number of horses.

² See note 2, Table 2.

³ 5.35 bushels per acre (17, 1915-14, p. 787).

⁴ Net exports of oats for the years beginning Aug. 1 (17, 1915-20).

⁵ See note 5, Table 2.

⁶ 4.35 bushels per acre. Estimated by the Royal Hungarian Ministry of Agriculture (22, p. 25).

⁷ Estimated requirement (22, p. 25).

⁸ See note 8, Table 2.

⁹ See note 9, Table 2.

¹⁰ Estimated from 1902-1911 average given in (4). Area, 179,000 acres; production, 4,963,000 bushels, export, 1,834,000 bushels; and disappearance, 2,930,000 bushels. Number of horses in Bessarabia in 1906, 361,000.

¹¹ Acreage and production, (17, 1915).

¹² 4.46 bushels per acre. Estimated to be the same as Hotin Uyezd, Russia; from Yuroj (35, pt. II, p. 215).

¹³ Estimated to be the same as Bessarabia.

¹⁴ See note 14, Table 2.

¹⁵ 4.12 bushels per acre; same as total Bulgaria.

¹⁶ Estimated to be the same as Bulgaria, 1912 boundaries.

¹⁷ Deficit.

¹⁸ See note 17, Table 2.

¹⁹ 3.812 bushels per acre used for 1921-26, as indicated in pre-war average.

²⁰ Net exports of oats for years beginning Aug. 1 (17, 1914-1917).

During the 5-year period ended 1925 disappearance of oats in Greater Rumania averaged 42,091,000 bushels or 23.45 bushels per horse. Gross production during this period averaged 953,000 bushels below the 1909-1913 average; but increased acreage brought the seed requirement up to 3,532,000 bushels more than before the World War. Consequently net production was only 50,876,000 bushels, as compared with the 1909-1913 average of 55,361,000 bushels. Annual export averaged about 8,785,000 bushels or nearly 10,000,000 bushels below the pre-war normal.

As in the case of barley, the peasants expanded the area seeded to oats very greatly during the years 1921 to 1925. The acreage reached a maximum in 1923; since that year oats production has tended to return to normal pre-war levels.

Before the World War Belgium, Holland, Italy, England, and Austria-Hungary were the principal purchasers of Rumania's oats surplus. In 1923 most of the exported surplus went to Belgium, Austria, and France. (Table 28.)

TABLE 28.—Oats: Net exports of Rumania; average, 1909-1913, annual, 1923 (55)

Country to which exported	Average 1909-1913	1923 ¹	Country to which exported	Average 1909-1913	1923 ¹
	<i>Bushels</i>	<i>Bushels</i>		<i>Bushels</i>	<i>Bushels</i>
Austria.....	1,170,979	5,241,947	Holland.....	1,687,842	210,023
Hungary.....	1,170,979	554,947	Italy.....	1,411,046	682,975
Belgium.....	3,539,238	4,786,483	Poland.....	26,577	160,114
Bulgaria.....	19,491	(7)	Russia.....	128,391	421
Czechoslovakia.....	1,405,154	172,192	Serbia.....	45,928	114,065
England.....	1,405,154	124,701	Turkey.....	62,423	46,778
France.....	320,701	1,233,062	Other countries.....		
Germany.....	348,255	303,618			
Gibraltar.....	551,295	56,404	Total.....	10,742,352	12,124,958
Greece.....	215	434,540			

¹ 1923 is the only postwar year for which data are available by countries.² If any, included in other countries.³ For Yugoslavia.⁴ Net imports.

CORN

Corn is by far the most important cereal crop of Greater Rumania. It forms the chief article of diet of the rural population, who before the World War consumed annually as human food and fed to livestock an average of 10 bushels per capita. During the 5-year period ended in 1913, net production averaged 191,773,000 bushels, from which 126,807,000 bushels were consumed domestically in the form of food, for industrial uses, feed for domestic animals, and for reserve stocks, releasing about 64,966,000 bushels for export. (Table 29.)

TABLE 29.—Corn: Statistical balances of Greater Rumania; average, 1909-1913, and annual, 1921-22 to 1926-27.

District	Acreage	Seed	Production		Disappearance	Exportable surplus
			Gross	Net	Statistical	Per capita
Pre-war average, 1909-1913:	1,000 acres	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels
Old Kingdom of Rumania.....	5,150	91,478	100,620	90,142	60,413	8.51
Transylvania.....	2,449	1,367	56,110	54,743	13,073	10.11
Bessarabia.....	1,922	1,814	35,328	33,011	9,928	3.70
Bukovina.....	158	83	2,798	2,715	2,978	4.03
Bucovina.....	93	40	2,159	2,159	1,135	1.03
Durostor and Caliacra.....						
Total, Greater Rumania.....	9,742	3,782	195,555	191,773	126,807	7.96
Post-war period: ¹						
1921-22.....	8,510	3,302	110,638	107,336	95,428	11.11
1922-23.....	8,411	3,263	119,829	116,566	89,873	10.63
1923-24.....	8,412	3,291	151,403	148,139	118,796	14.10
1924-25.....	8,949	3,472	155,461	151,969	128,179	14.10
1925-26.....	9,713	3,769	163,739	159,970	132,821	14.10
Average, 1921-22 to 1925-26.....	8,799	3,414	140,214	136,800	113,219	6.76
1926-27.....	10,031	3,892	224,458	220,566		

¹ For populations, see Table 21.² See note 2, Table 21.³ 0.287 bushel per acre (17, 1913-14, p. 787).⁴ Net exports for calendar years 1909-1913.⁵ See note 5, Table 21.⁶ 0.559 bushel per acre. Estimated by the Royal Hungarian Ministry of Agriculture (22, p. 19).⁷ Estimated domestic requirement (22, p. 19, Table 10).⁸ See note 8, Table 21.⁹ 0.43 bushel per acre. Yurojai (38, pt. II, p. 209).¹⁰ Estimated from 1902-1911, average given in (4).¹¹ Acreage and production (27, 1917).¹² 0.526 bushel per acre; same as for Hotin Uezd, Russia, from Yurojai (38, pt. II, p. 209).¹³ Estimated to be the same as Bessarabia.¹⁴ Deduct.¹⁵ See note 14, Table 21.¹⁶ 0.425 bushel per acre. Same as Bulgaria.¹⁷ Same as Bulgaria, 1912 boundaries.¹⁸ See note 17, Table 21.¹⁹ 0.326 bushels per acre used for 1921-1926, as indicated in pre-war average.²⁰ Calendar years for years following crop year (17, 1925-27).

Between 1921 and 1923 the area of corn changed but little, and then in 1924 it increased almost 536,000 acres. The next year the acreage advanced almost 800,000 acres, followed by a further increase of 300,000 acres in 1926. These sharp advances in corn acreage mark the trend in the reformed Rumanian agriculture in which peasant customs and habits dominate the areas seeded and in which peasant methods will in future determine the rate and amount of production.

The area planted to corn in 1925 reached 9,713,000 acres, as contrasted with the 1909-1913 average of 9,742,000 acres. The following year, 1926, brought corn above the pre-war level, with an area of 10,031,000 acres.

During the 5-year period ended in 1925 the gross production of corn averaged about 140,214,000 bushels and exportation²⁵ about 23,581,000 bushels. This would indicate that about 116,633,000 bushels each year were employed as seed, food, feed, and reserve stocks. During 1909-1913 the disappearance, plus seed, averaged 130,589,000 bushels, indicating that since the World War the domestic use of corn in Greater Rumania has been considerably less than formerly. Per capita disappearance during 1921-1925 averaged 6.76 bushels, as contrasted with 7.96 bushels before the war.

The general trend in corn production in Greater Rumania in 1927 was toward increased acreage, which would probably fluctuate above the high level reached in 1926. Before the World War the leading purchasers of corn from Rumania were Belgium, Austria-Hungary, Italy, Holland, England, Gibraltar, Germany, and France. In 1923 Belgium was the chief buyer of Rumanian corn, followed by Gibraltar, Holland, France, Austria, England, and Italy in the order named. (Table 30.)

TABLE 30.—Corn, including corn flour: Net exports of the old Kingdom of Rumania, average, 1909-1913, and of Greater Rumania, 1923 (55)

Country to which exported	Average 1909-1913	1923 ¹	Country to which exported	Average 1909-1913	1923 ¹
	<i>Bushels</i>	<i>Bushels</i>		<i>Bushels</i>	<i>Bushels</i>
Austria.....	7,738,473	2,550,550	Holland.....	3,981,612	3,618,750
Hungary.....	315,409	315,409	Italy.....	5,473,638	1,381,272
Belgium.....	10,200,718	3,108,550	Norway.....	165,469	494,254
Bulgaria.....	1,947	1	Poland.....	115,245	331,109
Czechoslovakia.....	724,517	(7)	Russia.....	186,245	(9)
Denmark.....	846,696	(7)	Spain.....	477,478	19,684
Egypt.....	18,646	(7)	Sweden.....	6,644	102,832
England.....	3,975,570	2,264,482	Turkey.....	80,407	27,680
France.....	2,206,702	3,183,874	Other countries.....	176,765	1,177,232
Germany.....	1,635,354	55,652			
Gibraltar.....	2,901,797	4,990,802	Total.....	38,728,958	49,707,292
Greece.....	18,564	298,487			

¹ 1923 is the only postwar year available by countries.² Net imports.³ If any, included in other countries.⁴ This total for 1923 differs slightly from that in Table 33, since each is from a different source.

OTHER CEREALS

Millet, buckwheat, and sorghum are seeded in relatively unimportant acreages in Greater Rumania. The area under millet in 1921 was 182,701 acres and in 1925, 181,722 acres. Buckwheat increased from 7,752 acres in 1921 to 16,578 acres in 1925, but the total area

⁵ Exports are for calendar years 1922-1926 following the crop years.

was so small as to be negligible. The sorghum acreage was 5,500 acres in 1921 and only 798 acres in 1925.

POTATOES

As compared with cereal production, potato production occupies an insignificant position in the agriculture of Rumania. Before the World War potato acreage averaged 359,000 acres, of which the equivalent of 9,000 acres were planted in cornfields. Net production (gross production less seed and less 10 per cent for decay and other losses) averaged approximately 30,948,000 bushels annually. Disappearance was approximately 30,948,000 bushels, or 1.94 bushels per capita. As indicated in Table 31, before the World War a small annual deficit had to be remedied by imports into the territories now constituting Greater Rumania.

Table 31.—Potatoes: Statistical balances of Greater Rumania; average, 1909-1913, and annual, 1921-1925

District	Acreage	Seed	Production		Disappearance		Exportable surplus (+) or deficit (-)
			Gross	Net ¹	Statistical	Per capita ²	
Pre-war average 1909-1913:							
Old Kingdom of Rumania ³	435	1,000 bushels	4,550	3,521	3,518	0.50	+4.3
Seven Mountain districts: Caras Severin, and Maramuresh ⁴	127	2,082	12,212	9,809	4,218	1.28	+5.91
Banat and Crisana ⁵	64	1,635	6,331	4,223	9,698	4.95	-5.445
Bessarabia ⁶	42	968	4,300	3,182	3,182	1.28	—
Bukovina ⁷	42	2,702	14,248	10,121	10,348	12.86	-227
Ducrovat and Calicra ⁸	(7)	19.5	30	13	14	0.03	-1
Total, Greater Rumania.....	359	7,706	42,861	30,809	30,948	1.94	-79
Post-war period: ⁹							
1921.....	420	10,420	50,987	35,408	35,412	2.18	+5.56
1922.....	389	9,577	41,011	27,333	27,302	1.65	+3.31
1923.....	454	11,264	71,750	53,311	53,323	3.19	-12
1924.....	503	12,479	61,318	49,707	49,689	2.51	+18
1925.....	483	11,983	62,378	44,157	44,107	2.56	+50
Average, 1921-1925.....	449	11,145	57,480	40,595	40,566	2.42	+2.9

¹ 10 per cent of gross production also deducted from each district for decay and other losses.

² For populations see Table 21.

³ Acreage and production (51, 191).

⁴ There were 26,000 acres and 3,362,000 bushels grown without corn, or 123.3 bushels per acre; 1,188,000 bushels were grown with corn at a yield of 123.2 bushels per acre—equivalent to 9,000 acres grown alone.

⁵ Same rate of seed used as that in Bessarabia.

⁶ Net exports for calendar years (57, 1913-59).

⁷ See note 5, Table 21. Seven Mountain district, Caras Severin, and Maramuresh, Banat, and Crisana are now united into a single district called Transylvania.

⁸ Per capita disappearance assumed to equal that in Bessarabia. Population, 3,295,309.

⁹ 25.86 bushels per acre (22, p. 27).

¹⁰ Human consumption, 4.3 bushels per capita, same as for Hungary as given in (27, 1922, p. 816). Population, 1,853,213. 30 per cent of net production is fed to livestock and used industrially.

¹¹ See note 5, Table 21.

¹² 16.30 bushels per acre from Yurojai (53, p. 2, p. 816).

¹³ Disappearance assumed to balance net production; other data not available.

¹⁴ Acreage, seed, and production (27, 1922).

¹⁵ Human consumption, 6.61 bushels per capita; same as for Austria as given in (27, 1922, p. 816). 30 per cent of net production fed to livestock and 1,992,224 bushels used industrially, as given on page 563—same source.

¹⁶ See note 14, Table 21.

¹⁷ Only 188 acres.

¹⁸ 25.30 bushels per acre. Estimated to be the same as Croatia Slavonia (22, p. 27).

¹⁹ Assumed to be the same as Bulgaria.

²⁰ Acreage and production 1921 to 1926 from official records of U. S. Department of Agriculture, Bureau of Agricultural Economics.

²¹ The acreage of potatoes grown with corn has been changed to ordinary acreage according to the yield per acre for potatoes grown alone. Potatoes grown alone: 1921, 409,000 acres; 1922, 355,000 acres; 1923, 420,000 acres; 1924, 466,000 acres; 1925, 460,000 acres; 1926, 442,000 acres.

²² 24.81 bushels per acre used for 1921 to 1926, as indicated in pre-war average.

²³ Includes potatoes grown with corn 1921 to 1926. Potatoes grown alone, 1921, 49,600 bushels; 1922, 37,691,000 bushels; 1923, 67,520,000 bushels; 1924, 56,815,000 bushels; 1925, 59,351,000 bushels.

²⁴ Net imports indicated by (-) and net exports by (+) for calendar years from (57, 1922-59).

Potatoes were utilized almost exclusively as human food in the old Kingdom of Rumania, in the territories ceded by Bulgaria, in the district of Seven Mountain, Caras Severin, and Maramuresh. Almost no potatoes were fed to livestock in these territories, and only very small quantities were employed in the manufacture of brandy or alcohol. There were 28 distilleries in the old kingdom which utilized prunes, for the most part, in the manufacture of the native strong drink called "tzuika." During the years just preceding the World War small quantities of grain, potatoes, and molasses were also employed by the distilleries.

There are no detailed statistics as to the location of distilleries in Transylvania, but conditions in the mountain regions were similar to those in Rumania proper; on the other hand, in the Banat and Crisana they were similar to conditions in Hungary, where 1.17 quintals (4.3 bushels) of potatoes per capita were consumed as human food and about 30 per cent of the net production was fed to livestock or utilized in the manufacture of alcohol. The Austrian Government estimated that during 1909-1913 the industries of Bukovina utilized annually 1,992,000 bushels of potatoes and that 3,037,000 bushels were fed to livestock. There were 20 distilleries in Bessarabia in 1910 which utilized only 274,000 bushels of potatoes in the manufacture of alcohol. Almost no potatoes are fed to livestock in this district. In the territories constituting the present Kingdom of Rumania the pre-war use of potatoes varied widely according to the different conditions under which potatoes were produced.

Since the World War there has been a tendency toward increased potato production in Greater Rumania, the 1921-1925 area averaging 449,000 acres,²⁵ the net production from which averaged 40,595,000 bushels or nearly 9,726,000 bushels more than the pre-war normal production. Disappearance and net production practically balanced during these five years, only 29,000 bushels having been exported on the average each year.

It is probable that the present potato acreage in Greater Rumania is about that required to meet the domestic food requirements. Only relatively small quantities of potatoes are employed as feed for livestock or for industrial uses.

Table 32.—Potatoes: Foreign trade of the old Kingdom of Rumania, average, 1909-1913, and of Greater Rumania, 1923¹ (35)

Country	Average 1909-1913 :		Country	Average 1909-1913 :	
	Bushels	1923 :		Bushels	1923 :
Austria.....	+18,169	-1	Poland.....	+2,482	+1,681
Hungary.....	-5,125	(?)	Russia.....	-17,147	-9,776
Bulgaria.....	-2,202	(?)	Turkey.....	+170	-156
Egypt.....	+460	+2,356	Other countries.....	—	—
Germany.....	—	—	Total.....	-3,193	+12,044

¹ 1923 is the only postwar year for which data are available by countries.

² Net imports indicated by - and net exports by +.

³ If any, included in other countries.

Production of potatoes in Greater Rumania may increase somewhat in response to increased domestic consumption rather than in response

⁴ This included potatoes grown in cornfields and in connection with other crops equivalent to 25,000 acres.

to any export demand, since these territories can not compete with the regions of heavy rainfall in Poland, Germany, and Czechoslovakia where soils and climatic conditions particularly fit them for heavy yields per acre.

Before and since the World War Rumania has imported potatoes from Austria, Hungary, Poland, and Germany, and has exported potatoes to Turkey, but the volume of trade is unimportant. (Table 32.)

SUGAR BEETS AND BEET SUGAR

The beet sugar industry of Greater Rumania is organized around 10 factories and refineries. Five ²⁷ of these factories, under the control of Belgian capital, are located in the old Kingdom of Rumania. Two factories, formerly part of the Austro-Hungarian sugar combine, are located in the southeastern part of the Seven Mountain region in the angle formed by the Carpathian Mountains with the Transylvanian Alps. There is one ²⁸ factory in Bukovina, also formerly a member of the Austro-Hungarian combine. There is one factory in Bessarabia, formerly part of the Russian sugar syndicate, and a factory has recently been built at Oradea-Mare in the sugar-beet growing district of Crisana.

The nine factories that were in operation before the World War, and are still extant had the capacity to handle 8,706 short tons of beets daily. (Table 33.) They worked up 439,640 short tons of beets annually during pre-war years and produced on the average the equivalent of 57,495 short tons of raw sugar.

TABLE 33.—Sugar beets: Estimated acreage, beets utilized, and sugar produced in nine factories operating in Rumania, 1909-1913

District and factory	Beets worked per day ¹	Beets utilized at factories		Raw sugar produced
		Acreage	Quantity	
Old Kingdom of Rumania:	Short tons	Acres	Short tons	Short tons
Roman.....	1,633			
Saint Putna.....	551			
Chilia.....	1,061	27,941	248,670	31,227
Ripieni.....	1,102			
Giurgiu.....	1,102			
Transylvania:				
Bod.....	1,102	8,367	(15) 70,348	(15) 11,936
Targu-muresh.....	551	2,720	(10) 38,948	(10) 3,474
Bukovina: Jucuta.....	1,633	8,640	(2) 70,428	(2) 8,490
Bessarabia: Zoroleni.....	551	8,888	14,286	2,359
Total.....	8,706	50,506	439,640	57,495

¹ Consular report June 3, 1922 from Ely C. Palmer.

² Total acreage and production in the old Kingdom as given in (37), less one-sixth. It is assumed that all beets grown during 1909-1913 were utilized at the 6 factories then extant, one-sixth being deducted as the portion of the product worked up at the factory destroyed during the war.

³ Total production at 6 factories as given in (77, 1918-1921, p. 181), less one-sixth. (See note 2.)

⁴ Estimated by assuming that the yield of beets utilized at factories was the same as average yield per acre of all beets grown in the region of Seven Mountains.

⁵ These figures are for 1909-1911 average, since data regarding beets worked in factories and production of sugar for 1912 and 1913 are not available. There was also another factory in Bukovina which was destroyed during the war and is not reported in this table.

⁶ The total area of beets planted in Bukovina during 1909-1911 was 6,333 acres, producing 51,431 short tons of beets as reported in (7), but the quantity of beets used in the two factories of Bukovina during this period amounted to 140,856 short tons, an excess over production of 89,223 short tons which had to be imported.

Assuming the yield per acre for the imports to be the same as total yield per acre of Bukovina, would indicate an acreage of 10,945 acres, or a total of 17,281 acres of beets planted for use in the two factories, half of which is assumed to be for the factory reported.

⁷ (39, 4th, 5, 10.) Acreage for 1913 estimated by assuming that the yield per acre for the beets utilized at the factory was the same as the total yield per acre harvested for the factory, since some of the production for the factory was exported.

⁸ Before the World War there were six factories in the old Kingdom and two in Bukovina. One factory in each district was destroyed during the war.

The sugar produced, the beets worked at the nine factories now operating in Greater Rumania that were also in operation before the World War, and the acreage equivalent to the beets worked is considerably less than the acreage actually planted to beets and the beets that were actually produced within the territories now comprising the new Rumanian Kingdom. In the first place, two factories with the capacity to work up 120,162 short tons of beets annually have been destroyed. In addition, more than 245,000 short tons of beets produced in the Banat, Crisana, and Seven Mountain region that were formerly parts of the Kingdom of Hungary were shipped annually to factories in Bihar, Csanad, and Torontal Provinces which remained to Hungary or were ceded to Yugoslavia and from which the former producers in the present Rumanian territory are cut off by the new national frontiers and customs barriers.

The factories in Bukovina before the World War shipped in beets from Galicia, now part of Poland, and perhaps from Russia; but on the whole the territories now comprised within the boundaries of Greater Rumania grew more sugar beets than were utilized by the factories now located within those boundaries.

It has been estimated that the territories now comprising Greater Rumania planted 73,000 acres that produced (Table 34), an annual average of 716,000 short tons of sugar beets. The sugar equivalent of this tonnage of beets is 96,513 ²⁸ short tons of raw sugar, but a part of this sugar was produced in factories now located in Hungary and Yugoslavia and part in two factories that were destroyed during the war.

TABLE 34.—Sugar beets and sugar: Acreage and production in Greater Rumania, average, 1909-1913; annual, 1921-22, 1926-27

Year	Sugar beets		Raw sugar production	Year	Sugar beets		Raw sugar production
	Acreage	Production			Acreage	Production	
	Acres	Short tons	Short tons		Acres	Short tons	Short tons
1909-1913 ¹	73,000	716,000	72,299	1924-25.....	132,722	962,432	98,379
1921-22.....	56,981	387,618	33,069	1925-26.....	138,885	1,088,856	114,429
1922-23.....	53,875	324,303	33,338	1926-27.....	208,600	1,324,000	143,000
1922-23.....	91,968	706,633	81,857				

Acreage and production of sugar beets 1909-1913 from Tables 15 and 19; 1921-1924 (32); 1925, (31); and 1926 (18).

² Sugar production 1909-1913, from Table 33; 1921, 1922, 1924, and 1925 (50); 1923 and 1926 (18).

³ Acreage and production of sugar beets for 1909-1913 will differ from that in Table 33, since these figures are total acreage and production, whereas in Table 33 the figures are for acreage and production in sugar beets used in factories only.

⁴ Includes 8,499 short tons of sugar that was produced in the sugar factory in Bukovina and 6,245 short tons produced in the factory in the old Kingdom that was destroyed during the World War. This is the quantity of sugar that was actually produced in Greater Rumania, but the equivalent of sugar from the 716,000 short tons of beets produced in Greater Rumania is equal to 96,513 short tons, estimated by using the yield of sugar per ton of beets for each division separately, as indicated in Table 33.

The sugar actually produced before the World War at factories now extant and which were in operation before the war in Greater Rumania was approximately 57,495 short tons annually.

SUGAR CONSUMPTION IN GREATER RUMANIA

The six factories in the old Kingdom of Rumania during 1909-1913 produced annually the equivalent of 37,472 short tons of raw sugar

⁵ Total beets produced in each division times average pre-war yield of sugar as indicated in Table 33.

and exported (net) an average of 2,098 short tons. Domestic disappearance thus averaged about 35,374 short tons, or approximately 10 pounds per capita. The Austrian Government has estimated the pre-war disappearance of sugar in Bukovina at 16.3²⁹ pounds of raw sugar per capita. This indicates an annual disappearance equivalent to 6,559 short tons. The two factories produced annually 16,998 short tons and there was an exportable surplus of about 10,439 short tons. In the present administrative district of Transylvania, the food habits of the populations of Seven Mountains, Caras Severin, and Maramuresh are almost identical with those of the inhabitants of the old Kingdom, the consumption of sugar was at about the same rate or 10 pounds per capita, totaling annually 16,477³⁰ short tons (in terms of raw) or about 1,067 short tons more than was produced at the two factories at Bod Brashor and Targu-muresh. The 1,953,213 inhabitants in the Banat and Crisana consumed sugar at about the same rate as in the provincial counties of Hungary or the equivalent of 19 pounds of raw sugar per capita per year. The total sugar consumption of this region was thus an uncovered deficit of about 18,556 short tons annually.

The disappearance of sugar in Bessarabia was about the same as in other parts of European Russia which, during 1909-10 to 1913-14, averaged 17.7 pounds per capita. This indicates a total consumption equivalent to 22,038 short tons of raw sugar annually in Bessarabia. The factory at Zarajani produced 2,359 short tons, resulting in an average deficit during 1909-1913 of about 19,679 short tons each year. The populations in Durostor and Caliacra (annexed from Bulgaria in 1913) consumed sugar at about the same rate as in Bulgaria, or 12.3 pounds per capita, equivalent to an annual disappearance of 1,724 short tons of raw sugar per annum.

The total pre-war disappearance of sugar in the territories now comprising Greater Rumania was thus equivalent to approximately 100,728 short tons of raw sugar, or 12.7 pounds per capita per year. Production averaged 72,239 short tons, indicating an average annual deficit of 28,489 short tons.

Two sugar factories had been destroyed during the war and the equipment of some of the others had been badly damaged. Repairs were slowly effected with the result that the demand for beets was much less during the reconstruction period than it had been in pre-war days. Beet growing was, consequently, disorganized and acreage was low during 1921 and 1922. Production of sugar was far below the pre-war average. However, importations were not correspondingly increased so that total disappearance during the season 1921-22 was about equivalent to 69,000 short tons of raw sugar (or 8.5 pounds per capita), and during 1922-23 about 84,000 short tons, or 10.2 pounds per capita as compared with the estimated pre-war requirement of 100,728 short tons, or 12.7 pounds per capita.

In the fall of 1922 the sugar factories of Greater Rumania combined into an association to facilitate their dealings with the Government and the growers and to regulate the price to be charged for sugar as well as that to be paid for beets.

²⁹ Disappearance for household purposes only 13.4 pounds refined sugar per capita. Total disappearance 14.3 pounds (including industrial utilization) (27, 1927, p. 218). Ratio of refined sugar to raw is 100:114.

³⁰ 1940 population of these three districts was 3,265,500.

In 1923-24 there was a marked expansion in beet acreage which exceeded the pre-war area by 19,000 acres. Production of raw sugar jumped to 81,857 short tons. There had been a net importation equivalent to 32,516 short tons of raw sugar during the calendar year 1924 indicating a total supply at the end of the year of approximately 114,373 short tons. This quantity of sugar was greatly in excess of the disappearance during the previous year. The Ministry of Industry and Commerce estimated the normal domestic requirement at about 100,000 short tons. The Government, therefore, consented to the exportation of 11,000 short tons. The exportation of this quantity of sugar, however, never materialized.

The 1923 population had increased to 16,736,000 as compared with 15,923,938 before the World War. Assuming that the per capita disappearance was at least no greater than during pre-war days, or 12.7 pounds, domestic disappearance should have been at least 106,274 short tons, indicating a small carry-over of about 8,000 short tons.

The next season, 1924-25, acreage and production of beets greatly increased, but the factories realized only 98,379 short tons of sugar. A small importation of sugar amounted to 2,218 short tons, which included a small quantity of manufactured sweets not separately stated in Rumanian statistics. This indicates a total supply including the carry-over of the previous year around 108,597 short tons, whereas the 1924 population of 16,976,000 multiplied by the pre-war per capita disappearance indicates a total requirement of 107,798 short tons.

During 1925-26 sugar beet acreage reached 158,885 acres as compared with 73,000 acres before the World War. The factories produced 114,829 short tons. There had been an increase in population that brought the calculated domestic requirement up to 109,322 short tons, indicating a small surplus.

The data for the three sugar seasons indicate that sugar consumption in Greater Rumania ranges above 105,000 short tons per year.

The next season, 1926-27, marked a great expansion of area to 203,600 acres with a beet production of 1,324,000 short tons, yielding the equivalent of 143,300 short tons of raw sugar. This should place Rumania upon an exporting basis.

Preliminary estimates for the 1927-28 season gives the beet area at 209,000 acres, indicating that the era of rapid expansion is at an end and that beet production will in future follow seasonal fluctuations about this new level.

TOBACCO

Rumania lies at the northern limits of the production of small-leaf Turkish tobacco of good quality. The industry was originated by the Turks during the time that the territories now comprising Rumania were parts of the Ottoman Empire. On sheltered hillsides in the old Kingdom of Rumania and in Bessarabia and in the Seven Mountain region small-leaf tobacco of very good quality can be produced, and several local varieties have been developed from the varieties distributed among the peasants by the Turkish boys (more than 200 years ago.) The best quality of leaf, however, is produced from seed imported by the Rumanian Government from Macedonia

and distributed free among those who grow tobacco under the direction of the State monopolies (Regia Monopolurilor Statului).²¹

Although anyone may grow tobacco in Rumania, he must first obtain a permit to cultivate not less than 10 hectares (24.7 acres) for a specified number of years under the regulations and inspections of the State monopolies. This restricts the cultivation of tobacco to the more well-to-do peasants and the estate owners. Since the production of fine-veined, small-leaf tobacco is associated with certain conditions of soil and climate the localities in which it can be profitably grown are restricted to the hill regions, with southern exposures protected from northern winds by forests or windbreaks.

Before the World War, the old Kingdom of Rumania planted an average of 23,736 acres from which 16,426,000 pounds were harvested annually. The old Kingdom exported the greatest quantity of leaf tobacco to Austria-Hungary and France and imported fine grades of cigarette tobacco from Turkey and Greece as well as Sumatra and Habana tobaccos, for cigars, through Germany. This trade resulted in a net export of 1,652,000 pounds annually. Cigars were imported in considerable numbers from Germany and cigarettes were exported to France and Holland, resulting in a net import of 6,000 pounds. Manufactured tobacco and extract were both exported and imported (chiefly from Russia), the net import amounting to 39,000 pounds. On the whole the international trade of the old Kingdom in tobacco showed a net export of 1,607,000 pounds. Average annual consumption was thus about 14,819,000 pounds or 2.09 pounds per capita.

The tobacco grown in the territories ceded to Rumania by Bulgaria in 1913 was poor in quality. During 1909-1912 this area under tobacco averaged 2,663 acres and production averaged 1,699,000 pounds. Assuming that average consumption in this district equaled the per capita average for Bulgaria of 2.2 pounds, the average annual disappearance was approximately 617,000 pounds, resulting in a net surplus of 1,082,000 pounds.

Little tobacco was produced in Bukovina and that was of very poor quality. During 1909-1912 only 203 acres, yielding 204,000 pounds, were devoted to tobacco production. According to estimates of the Austrian tobacco monopoly, during 1909-1912, the average consumption of tobacco was 1,395,000 pounds, or 1.73 pounds per capita. The annual deficit of Bukovina was equivalent to 1,191,000 pounds.

The tobacco grown in Bessarabia was classed as Turkish by the Russian Government before the World War. During 1909-1913 there was an average of 7,529 acres under tobacco in this Province, producing 5,629,000 pounds annually. Comparatively little tobacco was manufactured into cigars or cigarettes in Bessarabia before the war. The use of cigars was confined to a few of the wealthy class. Cigarettes and cut tobacco for making cigarettes were shipped into Bessarabia from factories located in the interior of Russia. Consumption of tobacco averaged somewhere between the Russian per capita disappearance of 1.28 pounds and the Rumanian (2.09 pounds) or approximately 1.68 pounds. This is equivalent to a

²¹ The director general of State monopolies, a department of the Ministry of Finance, has charge of the manufacture and sale of matches, cigarette paper, playing cards, combustible materials, and salt, as well as managing the tobacco industry.

total disappearance of 4,184,000 pounds, indicating a net exportable surplus of 1,445,000 pounds.

Production and consumption of tobacco varies considerably in Transylvania. In the mountains, the varieties of tobacco are similar to the Turkish sorts grown in the old Kingdom and per capita consumption is about the same, averaging around 2.09 pounds. In the lowlands of the Banat and Crisana, large-leaf varieties of tobacco predominate. Consumption is about the same as in the old Kingdom of Hungary (2.53 pounds per capita per year). This would indicate an average annual disappearance of approximately 11,828,000 pounds for the regions constituting the present District of Transylvania, or a per capita disappearance of 2.25 pounds. During 1909-1913 the estimated area under tobacco in Transylvania averaged 19,012 acres, producing 23,075,000 pounds, indicating an exportable surplus of 11,247,000 pounds. (Table 35.)

The total pre-war area under tobacco in the territories now comprising greater Rumania was about 53,148 acres; production about 47,033,000 pounds; disappearance averaged about 32,843,000 pounds; and there was a net surplus of about 14,190,000 pounds.

TABLE 35.—Tobacco: Statistical balance of Rumania, average, 1909-1913, and annual, 1921-1926

District	Acreage	Production	Disappearance		Exportable surplus (+) or deficit (-)
			Statistical	Per capita ¹	
		1,000 pounds	1,000 pounds	1,000 pounds	
Pre-war average 1909-1913:					
Old Kingdom of Rumania ²	23,736	16,426	14,819	2.09	+1,607
Durotor and Calugara ³	2,663	1,699	617	2.29	+1,082
Transylvania ⁴	19,012	23,075	11,828	2.25	+11,247
Bessarabia ⁵	7,529	5,629	4,184	1.68	+1,445
Bukovina ⁶	203	204	1,191	1.73	-1,191
Total Greater Rumania	53,148	47,033	32,843	2.06	+14,190
Postwar period: ⁷					
1921	42,911	23,121			
1922	52,835	27,750	22,664		+5,086
1923	53,920	21,356	13,463		+10,893
1924	77,473	47,200	54,989		-7,789
1925	90,614	36,089			
Average 1921-1925	61,551	31,121			
1926	75,100	40,307			

¹ For populations see Table 21.

² Acreage and production (17, 1925-26).

³ Net exports (35, 1909-1913).

⁴ 1909-1912 average calculated from (9).

⁵ Average disappearance assumed to be equal to that of Bulgaria.

⁶ Acreage calculated from (16, Bd. 17-21). Production calculated by using the same yields per acre for separate divisions ceded, as those given for total Hungary in (16, Bd. 20, p. 116; 21, p. 35).

⁷ Disappearance in Banat and Crisana whose population was 1,853,215, estimated to be the same as in Hungary (2.53 pounds). In the mountainous district (Caras-Severin, Seven Mountain district and Maramureh) where the population was 3,295,309, the disappearance is estimated to be the same as that of the old Kingdom of Rumania.

⁸ Acreage and production (39, Ann. 6, p. 225; 10, p. 225).

⁹ Estimated to be an average between Russia and old Rumania. Russia=production (23,615,000 pounds) minus net exports (22,190,000 pounds)=23,861,000 pounds divided by population (16,949,000)=1.28 pounds.

¹⁰ Average 1909-1912 for acreage and production (1), 1909-1912 used since total consumption not available later than 1912.

¹¹ (2, Jahrg., 29, p. 225; 30, p. 146; 31, p. 154, 165).

¹² Acreage and production 1921-1926 from official records of U. S. Department of Agriculture, Bureau of Agricultural Economics.

¹³ 1922 and 1923 net exports (35, 1923).

¹⁴ 1924 net imports (35, 1924).

The large estates participated to a great extent in the production of tobacco before the World War. Since the war, yields per acre have fallen off and although acreage has increased, production has been below average except during the season 1924.

Although production has generally ranged far below the 1909-1913 average, the disappearance has also been very low and international trade in tobacco resulted in a net exportation of 3,000,000 to 4,000,000 pounds in 1922 and 1923. In 1924 production rose slightly above the pre-war average. Nevertheless imports of tobacco exceed exports by 7,694,000 pounds. It is probable that this excess import represented standard grades of tobacco that could be purchased advantageously by the monopoly and that reserve stocks were built up, which were larger than usual.

Rumania is not interested in American tobacco or cigarettes, as the popular demand is for a very mildly flavored tobacco.

Exports go largely to Hungary, Austria, Yugoslavia, and Czechoslovakia.

LIVESTOCK

Under the ancient Turkish rule the plains of the Danube and the Pruth Rivers and those of southern Bessarabia were utilized to a large extent as grazing lands for the long-horned gray cattle of the steppes and for buffalo, horses, and sheep. These plains were sparsely populated for the bulk of the Rumanian population had been crowded up into the foothills of the Transylvanian and Carpathian Mountains. The pastures and meadows of these mountains furnished grazing for the sheep (which had long gray wool), for goats, and supplied summer pasture for cattle. On the northern slopes of the mountains and throughout the hill country of the Transylvanian Plateau cattle grazing and sheep herding had been important adjuncts to agriculture for hundreds if not for thousands of years.

In present Rumania distinct mountain types of livestock are distinguishable which exhibit characteristics similar to those of the very ancient races from which they have descended. The horses are small, rugged, and resistant to inclement weather and hard usage. The mountain cattle³² are very small, wiry animals, quick gaited, and though light, are well adapted for work. They are gray in color as a rule; but tawny examples often appear. Mountain sheep are active breeds of the milk and meat type. The peasants slaughter the male lambs when about 5 to 9 days old, for the pelt, from which they make the characteristic Rumanian peaked cap worn both in summer and in winter. Mutton is seldom eaten except in spring, when the carcasses of lambs are consumed in large numbers. The mountain swine have the characteristics of the wild hog—long legs, razor-like back, and erect ears. The peasants keep large numbers of these native swine, although compared with the improved British or Hungarian breeds they are very uneconomical.

These native mountain breeds of livestock extend down into the lowlands, where they have been crossed with many other breeds of divers origin. In the old Kingdom the improved races came from the Turks; in Bessarabia they were largely introduced by the Rus-

sians and Germans; in Transylvania by the Hungarians; and in Bukovina the Austrians were responsible for bringing into Rumanian peasant communities improved races of horses, cattle, hogs, and sheep.³

Many different breeds were thus brought into each of the different departments where they have been intermingled with native stock. Some of these races have been maintained in a fairly pure condition upon large estates, as the Simmenthal cattle of the Banat and Crisana and the red German cattle of southern Bessarabia. The large estates also bred horses, and used as their chief market the army organizations of Germany and Austria-Hungary. It was on the estates that most of the flocks of Merinos and herds of Berkshires and Yorkshires were to be found.

The peasants are not natural animal breeders. In the first place the animals of any one peasant are pastured in the common grazing lands together with animals of all the other peasants. As a rule reproduction is haphazard, so that the whole village possesses animals of about the same grade of purity or admixture. The number of animals held by any one peasant is determined by the adjustment for pasturage that he can make with the village elders. These conditions all mitigate against specialization in animal breeding by the peasant farmer.

On the whole, the animal industry of Rumania is a home industry. Cattle and buffaloes are produced for work rather than for meat or milk, which are incidental to the traction power of these animals. Sheep are bred primarily for milk and secondarily for wool and skins from which the peasants make their winter clothing. As in Bulgaria and Yugoslavia, every peasant has a sheepskin or goatskin coat. Hogs alone are bred for meat, and pork almost exclusively forms the meat diet of the peasant although meat is rarely eaten except on holidays and at certain seasons of the year as at lambing time in the spring.

In the old Kingdom of Rumania, before the land reform, most of the land was in the hands of the large estate owners but most of the livestock was in the hands of the peasants—76.7 per cent of the horses, 80.3 per cent of the cattle, 70.8 per cent of the sheep, 80.6 per cent of the goats, 76.9 per cent of the swine, and 79.4 per cent of the bees. Similar conditions were found in Bessarabia, Transylvania, and Bukovina. (Table 36.) The large estate owner directed his attention to the production of cereals, sugar beets, and other crops that could be readily turned into cash. The object of peasant agriculture was, and still is, the maintenance of a home and family and the production of food and clothing. The essential animals are first the sheep and then the ox or the horse. Hogs are of less importance.

³² Compare with description of Serbian and Czechoslovakian mountain breeds, to which these Rumanian breeds are closely related.

TABLE 36.—Livestock and owners of livestock in 1911, classified according to size of land holdings in the region of Seven Mountains, Maramuresh, and Caras Severin ceded by Hungary

Size of land holding		Owners of animals		Horses	Cattle	Swine	Sheep	Goats	Mules	Donkeys
Arpent ¹	Acres	No.	No.	No.	No.	No.	No.	No.	No.	No.
Less than 1.....	Less than 1.4.....	15,429	3,336	16,965	16,082	24,605	4,144	6	115	
1 to 5.....	1.4 to 7.1.....	10,025	32,303	265,900	134,909	426,954	47,792	23	538	
5 to 10.....	7.1 to 14.2.....	123,283	45,133	357,902	160,809	664,976	45,565	16	369	
10 to 20.....	14.2 to 28.4.....	87,721	57,726	345,109	170,951	718,549	37,194	14	290	
20 to 50.....	28.4 to 71.1.....	37,449	44,918	207,231	106,162	470,235	22,844	26	188	
50 to 100.....	71.1 to 142.2.....	4,569	9,033	38,590	19,765	97,050	3,714	7	72	
100 to 200.....	142.2 to 284.4.....	1,391	3,036	17,294	9,439	45,531	1,158	7	84	
200 to 500.....	284.4 to 711.....	980	3,696	25,051	13,110	54,645	631	13	205	
500 to 1,000.....	711 to 1,422.....	442	2,963	20,958	17,013	35,416	251	9	135	
1,000 and over.....	1,422 and over.....	416	6,006	53,238	32,238	69,560	588	40	222	
Without land.....		65,319	20,013	64,195	83,963	92,401	15,007	59	701	
Total.....		476,623	228,787	1,392,103	754,496	2,695,884	178,923	220	3,099	

Calculated from (15, 1912, pp. 126-127).

¹ 1 arpent=1.422 acres.

HORSES

As a rule horse breeding among Rumanian peasants has not been profitable and usually there are only enough horses to maintain the number of work animals permitted to be grazed on the common pastures. Peasant horses are seldom fed oats, corn is not always available, and often hay and straw and cornstalks are the only feed. Mares are bred too early and colts are put to work too young. As a consequence, peasant horses are usually of a very low grade except among the Bulgarians in Dobruja and south Bessarabia, the Germans of south Bessarabia and the Banat, and the Magyars of Transylvania. On some of the large estates very good horses are to be found. Breeding operations for export and the remount requirements of the Rumanian Army are usually restricted to the large landlords and middle-sized farmers.

In the old Kingdom, besides the primitive mountain horse are found the Moldavian, probable descended from the Russian steppe breeds; the Jalomita, a good draft horse similar to native Magyar breeds; and the Dobruja, which is a fine crossbreed animal of Turkish and Arabian descent, similar to the horses in northern Bulgaria. This breed is also found in the Bulgarian villages scattered throughout southern Bessarabia. In Bessarabia the peasant horses are similar to those in Moldavia, intermixed with Russian steppe and Tartar types. On several of the estates are fine stables of Russian Orloffs, French Ardennes, Anglo-Arabian and other breeds. The native horses of Transylvania are of the Rumanian mountain type in the highlands and of the Magyar type in the lowlands. This latter race is descended from the horses brought in by the Magyars in the ninth century at the end of their migration from the Volga region in Russia. On the estates are found all the best breeds of central Europe.

There are no recent data as to the relation of the numbers of Rumanian horses to agricultural areas. The most recent figures are those of 1900 for the old Kingdom. In that year 726,687 horses

and 1,155,716 bulls, steers, and buffaloes were employed to plow 12,821,532 acres, or an average of 6.8 acres per animal.

As the large estates in Rumania have never had enough animals and agricultural implements to work their fields properly but have always depended upon the peasants to plow and harvest a large part of their crop lands and to haul their grain to market, in 1900 there were 346,416 small peasant farmers who owned nearly half the draft horses in the Kingdom, or an average of not more than 2 head each.

Although conditions were better in Bessarabia than in the old Kingdom, the estates were poorly equipped with draft animals and almost always depended upon the peasants for seasonal work.

Similar conditions prevailed in Transylvania, as indicated in Table 36, for the mountain districts of Seven Mountains, Maramuresh, and Caras Severin. Out of 228,787 horses found in these districts in 1911 the small peasants owned 196,106 whereas only 12,668 were found on the estates.

When the Central Powers retreated from Rumania in 1918 they took with them large amounts of railroad and other equipment as well as all the supplies on which they could lay their hands. The following year the Rumanians retaliated by raiding Hungary and invading the country as far as Budapest. It is reported that when the army withdrew they carried with them considerable supplies and equipment which may have included horses. In any case the year 1921 found the old Kingdom only 98,000 horses short of its pre-war (1911) numbers, as indicated in Table 37. Transylvania was 109,000 short of the 1911 returns. The shortage in Durostor and Caliacra and in Bukovina was 5,000 and 6,000 less than 1910, respectively, whereas conditions in Bessarabia were about normal.

TABLE 37.—Horses: Number in Greater Rumania, pre-war and 1921-1926

(In thousandths—i. e., 000 omitted)

District	Pre-war	1921	1922	1923	1924	1925	1926
Old Kingdom of Rumania.....	825	727	903	896	901	927	1,002
Durostor and Caliacra.....	70	65	70	67	67	67	67
Transylvania.....	511	402	392	377	389	419	421
Bessarabia.....	431	420	435	441	415	389	389
Bukovina.....	70	64	72	74	76	80	85
Total.....	1,907	1,687	1,802	1,828	1,845	1,815	1,877

Pre-war: Rumania 1911 (36, 1912, p. 20); Transylvania 1911, furnished by the Hungarian Ministry of Agriculture (22, pp. 51, 52). Bessarabia 1910 (39, Ann. 6, p. 23). Bukovina 1910 (5, Jahrg. 50, p. 86). Durostor and Caliacra 1910, calculated from (10).

1921 to 1926 (38, 1922, 1924, 1925).

1925 and 1926 from report of E. E. Palmer, United States consul, Bucharest, dated Mar. 25, 1927.

There is no public record of numbers transferred, but, Rumania has received from Bulgaria and Hungary considerable numbers of horses on account of reparation payments. This has tended to offset World War losses so that in the old Kingdom and the Bukovina the number of horses since 1922 has exceeded the pre-war average. There were similar increases in Bessarabia up to the time of the drought in 1924 and 1925. In Transylvania the numbers have fluctuated with feed conditions and the general status of agriculture, but on the whole recovery has been slow. The districts now comprising Rumania were,

in 1925, only 92,000 horses short of the pre-war (1910 and 1911) number, and 30,000 short in 1926.

Horse breeding in the old Kingdom was never important; only a few hundred animals were exported each year before the World War, whereas several thousand were imported. (Table 38.)

The Rumanian Government owns stables scattered throughout the country to provide for the remount requirements of the army. Since the World War some horses of the Turkish-Arab cross are shipped to Constantinople and some horses from the Banat and Crisana are shipped to central Europe each year; but, on the whole, horse breeding in Rumania is not as profitable as is cereal production and will probably remain, in future as at present, of very secondary importance.

TABLE 38.—Horses: Imports and exports of the old Kingdom of Rumania, 1877-1913, and of Greater Rumania, 1922-1925

Year	Imports	Exports	Year	Imports	Exports	Year	Imports	Exports
Old Kingdom:	Number	Number	Old Kingdom—	Number	Number	Old Kingdom—	Number	Number
Continued.			Continued.			Continued.		
1877.....	16,261	5,292	1893.....	8,596	453	1908.....	7,510	196
1878.....	31,775	4,246	1894.....	5,919	912	1909.....	7,623	128
1879.....	14,693	4,016	1895.....	5,211	655	1910.....	5,698	267
1880.....	14,680	2,248	1896.....	6,445	525	1911.....	12,438	622
1881.....	22,976	1,700	1897.....	6,308	280	1912.....	11,703	1,168
1882.....	20,704	1,546	1898.....	6,287	375	1913.....	9,759	102
1883.....	13,227	2,129	1899.....	5,997	467			
1884.....	7,968	3,369	1900.....	2,690	298			
1885.....	4,060	2,407	1901.....	4,123	237			
1886.....	2,369	1,278	1902.....	7,949	253			
1887.....	690	945	1903.....	8,265	290	1922.....	170	329
1888.....	3,530	680	1904.....	7,221	598	1923.....	64	1,199
1889.....	12,237	775	1905.....	7,108	373	1924.....	55	91
1890.....	6,344	456	1906.....	9,511	270	1925.....	69	98
1891.....	7,570	630	1907.....	6,945	194			
1892.....	7,672	283						

1877-1900 (55). 1901 to 1913 and 1922 to 1925 (55).

CATTLE

The native types of cattle found in all parts of Greater Rumania exhibit the same general characteristics of the primitive Asiatic breeds collectively called "*Bos taurus primigenius*." Throughout the central mountain ranges of Transylvania, Bukovina, and the old Kingdom the small mountain type (already described) predominates. In the foothills and plains regions to the east and south, in the old Kingdom, the Bukovina, and Bessarabia the common breeds belong to the Podolian²³ branch of the gray steppe cattle found generally in southeastern Europe; whereas to the north and west in the Department of Transylvania the Hungarian branch is found. The general characteristics of these two branches of steppe cattle are similar. The animals are large boned, long legged, active, powerful in the forequarters, and tapering in the hindquarters thus making excellent oxen. Their color is white-gray with darker shades often appearing. The Podolian cattle, although not short horned in the American sense of the term, have much shorter horns than do the extraordinarily long-horned Hungarian race.

There are many types of these cattle, named after particular localities, as Podolian, Ukrainian, Moldavian, Buckschan, Jalomitza,

²³ This name is derived from the Russian Province of Podolia.

and Hungarian. All these cattle make excellent yoke oxen (oxen from other breeds can not be compared with them) but they develop slowly, mature late, and are difficult to fatten; they yield relatively little first-class meat and barely enough milk to nourish a calf.

In southern Bessarabia there are large settlements of German colonists who brought with them the red cattle of Germany. The descendants of these cattle now constitute the red Bessarabian breed, Hohnagora, a fairly good dairy breed. Simmenthal cattle are found in all districts, particularly in the Banat and Crisana. Dutch cattle and other lowland dairy breeds have been introduced without great success on account of the sparse pasturage in the Rumanian lowlands.

Oxen of the native races are the chief draft animals in Rumania. Cows are almost never yoked, even when they are not utilized for milk production. The ordinary plains cows give only 3 to 4 quarts of milk daily. The mountain herds yield somewhat more, up to 7 to 8 quarts. Dairies are for the most part found only in the vicinity of large cities to supply these cities with liquid milk and partially to meet the demand for butter and cheese. As compared with Holland or France, there is no dairy industry in Greater Rumania, and considerable quantities of butter and cheese are imported annually.

WATER BUFFALOES

During the time of the migrations of some prehistoric people the water buffalo of India was introduced into the Danube Basin and to-day is found in the valleys of the Danube and its tributaries in the old Kingdom of Rumania, Bulgaria, Yugoslavia, Hungary, and Transylvania. In certain regions these slow but powerful animals, with 30 per cent greater traction strength than the ox, have displaced cattle as work animals among the peasants. They require better feed than cattle and a warm stall in winter. In many instances the cattle are never housed, but are protected against the wind and weather only by a fodder stack or by some rudely improvised, usually roofless, shelter.

According to the census of 1900, fully 61 per cent, or 1,155,716, of the draft animals of the old Kingdom of Rumania were bulls, steers, and draft water buffaloes. There were 2,588,526 head of cattle and water buffaloes of all classes in the old Kingdom of Rumania in 1900. The cattle on Rumanian farms were almost exclusively those engaged in active farm work, and a few cows and such young stock as were essential for replacement or work animals. After a few years of labor, they were sent to the block.

As the estates in the old Kingdom and in Transylvania depended largely upon the peasants' cattle for working the land, only 79,257 cattle were found on the large estates of the mountain regions of Transylvania in 1911 as contrasted with 1,248,651 cattle in the hands of small peasant farmers. Similar conditions were found in Bessarabia.

Before the World War, there were about 5,781,000 cattle in the territories now comprising Greater Rumania. (Table 39.)

TABLE 39.—Cattle, including water buffalo: Number in Greater Rumania, pre-war and 1921-1926

(In thousands—1, e., 000 omitted)

District	Pre-war	1921	1922	1923	1924	1925	1926
Old Kingdom of Rumania.....	2,667	2,447	2,823	2,553	2,558	2,541	2,329
Durotor and Callaria.....	184	183	130	120	120	120	120
Transylvania.....	2,184	2,266	2,110	2,029	1,967	1,804	1,705
Bessarabia.....	518	662	765	821	721	664	534
Bukovina.....	228	214	234	216	215	210	224
Total.....	5,781	5,722	5,932	5,739	5,583	5,219	4,992
Cows.....	12,250	12,335	12,437	12,426	12,360	12,286	12,286

Same sources as in Table 37.

1 Cows for old Kingdom and Bessarabia were estimated.

2 Not including water buffalo cows (54).

Under the conditions prevailing before the World War, the cattle of Rumania were largely owned by the peasants. As the peasants increased their holdings of land after expropriation it was to be expected that the numbers of cattle would be appreciably increased. By 1921, the total number cattle was only 59,000 below the pre-war estimate and in 1922 there were 151,000 more cattle than before the war. The next year, probably on account of feed conditions, there was a falling off in all parts of the Kingdom except Bessarabia. This falling off continued during 1924, 1925, and 1926, at which time total cattle numbered 789,000 below pre-war.

The number of cattle and of livestock in general that can be carried in Rumanian villages will always be limited by the quantity of feed available. Under conditions of peasant farming available feeding stuffs will fluctuate greatly from year to year. The decrease of cattle in 1925 to 5,219,000 as compared with 5,583,000 in 1924 was probably attributable to shortage in feed because although the number of cattle exported during 1925 was twice as many as in 1924 these cattle shipments to foreign countries have not been large. (Table 40.)

TABLE 40.—Cattle: Imports and exports of the old Kingdom of Rumania, 1877-1913, and of Greater Rumania, 1922-1925

Year	Imports	Exports	Year	Imports	Exports	Year	Imports	Exports
Old Kingdom.....	Number	Number	1892.....	Number	Number	1907.....	Number	Number
1877.....	1,645	37,941	1893.....	1,628	1,984	1908.....	335	3,225
1878.....	1,382	43,667	1894.....	574	22,797	1909.....	1,408	10,093
1879.....	4,006	30,654	1895.....	746	34,374	1910.....	570	9,300
1880.....	5,579	20,526	1896.....	811	20,551	1911.....	184	22,481
1881.....	6,909	20,792	1897.....	1,096	6,309	1912.....	209	24,756
1882.....	3,753	2,293	1898.....	3,285	8,526	1913.....	565	14,125
1883.....	2,129	3,276	1899.....	1,525	16,398	Greater Ruma- nia.....	338	10,044
1884.....	580	3,200	1900.....	156	8,972	1922.....	170	151,141
1885.....	338	11,821	1901.....	353	13,680	1923.....	6	108,324
1886.....	531	18,000	1902.....	942	11,454	1924.....	77	43,091
1887.....	291	17,371	1903.....	394	12,774	1925.....	247	86,178
1888.....	1,737	6,364	1904.....	235	17,391			
1889.....	2,336	2,009	1905.....	216	1,164			
1890.....	1,228	8,496	1906.....	328	2,360			
1891.....	461	3,464						

1877-1900 (50). 1901-1913 and 1922-1925 (55).

Before the World War, a very considerable percentage of the cattle sent to the northwest by Hungary originated in the Banat, in Crisana

and in the region of Seven Mountains. Since the war, the commission merchants of Vienna, Budapest, and Prague have reestablished their contacts with their former sources of supply. Although now separated from these former free markets by the customs barriers of the Rumanian frontiers, the Transylvanian departments have sent several thousand head of cattle abroad each year.

But this trade has been hampered by the enormous export taxes levied on cattle which, according to the report of Consul E. E. Palmer under date of April 24, 1925, amounted to as much as \$40 per head at that time.

On May 20, 1926, this export tax was reduced to practically 4,000 lei or \$14.80³⁴ per head for oxen, bulls, cows, and water buffaloes, regardless of weight and 600 lei or \$2.22 on hogs. At the same time, the State railroads canceled their supertax on freight rates applying to livestock intended for export, which had previously been 30 per cent in addition to the straight freight paid.

TABLE 41.—Beef produced at slaughterhouses in Greater Rumania, 1923 (37, p. 91)

District	Animals slaughtered	Live weight	Estimated meat produced ¹	Amount ² per capita
	Number	1,000 pounds	1,000 pounds	Pounds
Old Kingdom.....	495,290	596,145	274,227	37.1
Transylvania.....	550,251	518,543	238,530	43.5
Bessarabia.....	101,088	117,117	53,874	17.9
Bukovina.....	117,471	117,812	54,193	64.4
Total.....	1,217,180	1,349,617	620,824	37.1

¹ Dressed meat estimated to be 46 per cent of live weight.² See Table 4 for populations.³ This is the sum of the weights of animals slaughtered in each department as given above. The total given in (37) is equivalent to 1,350,730,000 pounds.⁴ Comparing the quantity of meat (beef, pork and mutton) to the population (1923) the result is an annual consumption of 51.35 kilograms (113.2 pounds) per town citizens and 3.50 kilograms (7.7 pounds) per rural inhabitant. (37, p. 9).

CONSUMPTION OF BEEF

The consumption of beef in Rumania is confined almost entirely to inhabitants of cities. The farming peasants seldom eat beef. There are no meat markets in the villages, where ice in summer is unknown, and therefore the fresh meat supply is restricted to small animals that can be consumed within a relatively short period. Within the cities themselves the rate of beef consumption varies greatly in different parts of the Kingdom. It is greatest in Bukovina and least in Bessarabia.

There were 1,217,180 mature cattle and calves slaughtered in Greater Rumania during 1923. Of this number, 503,331 were slaughtered in Transylvania and only 101,088 in Bessarabia.

As indicated in Table 41, the quantity of beef produced at slaughterhouses throughout Greater Rumania in 1923 was approximately 620,824,000 pounds, or about 37.1 pounds per capita.

There were no importations of fresh beef during the year, but 4,061,358 pounds were exported; 2,689,206 pounds of this quantity going to Austria, 985,108 pounds to Hungary, and 340,254 pounds to Czechoslovakia.

³⁴ The average value of 1 lei during May, 1926, was 0.37 cent.

This would indicate that the actual domestic consumption of beef in Greater Rumania during 1923 was 616,762,000 pounds, or 36.9 per capita.

SHEEP

Sheep raising in Rumania constitutes a relatively more important part of farming than is the case in more highly developed countries. The native sheep are of the fat-tail or long-wool breeds producing lambs whose hair at 5 to 10 days after birth assumes the tight-curl characteristic of Astrakan or Karakul fur. These sheep have been indigenous to the country since ancient times. They have been improved, particularly in Bessarabia, by importations of Karakul sires from Bukhara.

The best Rumanian astrakan comes from Bessarabia.

The Karakul sheep of Bessarabia, the Czurcana of the old Kingdom, and the Raczka and the Czigaja of Transylvania are milk-producing breeds of great importance in the peasant household. A ewe yields from 8 to 10 gallons of milk during a lactation period, from which 11 to 12 pounds of cheese can be made. This cheese called "brinza," together with corn-meal mush (mamaliga) and fruits and vegetables laid down in brine, form the basic diet of the peasant. In the spring of the year, at lambing time, the carcass of the young animals slaughtered for their pelts varies the monotony of this diet; but, with the exception of an occasional pig on holidays and fat salt or smoked pork, little meat is eaten in the rural districts.

An Asiatic breed of sheep similar to the Merino, called the "Czigaja," is found in the old Kingdom of Rumania. This breed has been crossed by full-blood Merinos with good results.

All the foregoing breeds would be classed as coarse-wool sheep, although the last two produce a better, finer quality than do the others. Colors vary from dirty white, through gray to red, brown, and black. The average mature sheep yields from 4 to 7 pounds of unwashed wool. Rumanian wool is utilized almost exclusively in home industries. A housewife is seldom seen without her distaff and spindle. She spins yarn even while walking to and from her daily work in the fields. Almost every household has a loom upon which cloth and carpets are manufactured from the brightly dyed wool. Every peasant has an astrakan cap and a coat of sheep pelt with the wool turned inside. The soft tanned skin outside is brilliantly colored with the decorative pattern emblematic of the locality in which he lives. Sheep are more nearly indispensable to the peasant than are any other farm animals, as they supply both food and clothing.

There were only 270 flocks of more than 1,000 head of sheep in the old Kingdom, according to the census of 1900. The most common size of flock comprised 10 head or less. Peasants possessed 270,358 of these small flocks.

In the mountain region of Transylvania there were 2,693,884 sheep in 1911 of which only about 159,621 were found on large estates. Full-blood Merinos, and various English breeds, as well as the better strains of native sheep were found only in the large flocks on the estates.

By 1921, the flocks of Greater Rumania had recovered to their pre-war status as indicated in Table 42.

TABLE 42.—*Sheep: Number in Greater Rumania, pre-war and 1921-1926*
(In thousands—1, e., 000 omitted)

District	Pre-war	1921	1922	1923	1924	1925	1926
Old Kingdom.....	5,209	4,793	6,197	5,560	6,524	6,869	7,691
Durostor and Caliacra.....	804	621	3,591	3,543	3,229	3,624	3,476
Transylvania.....	3,529	3,416	2,297	3,065	2,362	2,143	2,955
Bessarabia.....	1,342	2,180	2,297	2,450	2,362	2,143	2,955
Bukovina.....	189	184	236	553	300	314	320
Total.....	11,133	11,194	12,321	12,481	13,612	12,950	13,562

Same sources as Table 37.

It is easier for the peasant to increase his numbers of sheep than his horses or cattle because of restrictions in the grazing privileges on the village commons. Sheep produce milk for cheese and it is simpler for the peasant to visualize the benefits to be derived from an assured return of a few pounds more food than the benefits from the uncertain return of a margin of profit on the larger and later maturing classes of livestock.

In Transylvania, Bessarabia, and Bukovina increase in sheep numbers was steady until 1924. During this time the numbers of sheep in Bessarabia nearly doubled.

In 1925, the numbers of sheep on Rumanian farms in all districts except Bukovina show a decrease as compared with the previous season probably because of the dry season of 1924 and consequent shortage of feed.

There was great destruction of the sheep-herding establishments in the Dobruja during the World War and there was a reduction of pasturage in this region. As indicated by the data for Durostor and Caliacra, the recovery of the sheep industry southeast of the Danube has been slow.

WOOL

Little of the wool produced in Rumania is suited to the commercial textile industry of the country which employs for the most part cotton, flax, and hemp. The peasants spin and weave at home almost all the fabrics used in making their clothing from home-produced flax and wool. In recent years, however, they have been wearing factory-made cotton goods in increasing quantities. The export wool of Rumania is the coarse, long sort suitable only for carpets and felt. The textile mills import wool and yarn of the finer grades.

From 1888 to 1900 the export of wool from the old Kingdom had been fairly regular, ranging between 1,000 and 1,500 short tons annually. (Table 43.) With increased production it is probable that greater quantities of wool will be available for export.

TABLE 43.—Wool: Imports and exports of the old Kingdom of Rumania, 1876-1913, and of Greater Rumania, 1922-1925

[In thousand pounds—i. e., 000 omitted]

Year	Imports	Exports	Year	Imports	Exports	Year	Imports	Exports
Old Kingdom:			Old Kingdom—			Old Kingdom—		
1876.....	40	5,365	Continued.			Continued.		
1877.....	39	7,073	1892.....	720	2,815	1907.....	1,164	2,545
1878.....	39	7,357	1893.....	1,577	2,901	1908.....	1,832	1,978
1879.....	14	5,640	1894.....	1,162	3,365	1909.....	1,433	2,675
1880.....	13	9,127	1895.....	870	4,192	1910.....	1,406	2,923
1881.....	16	8,330	1896.....	1,156	2,924	1911.....	2,200	3,651
1882.....	42	8,098	1897.....	1,362	2,153	1912.....	2,518	2,119
1883.....	21	7,104	1898.....	1,663	2,485	1913.....	2,256	3,267
1884.....	205	6,921	1899.....	1,188	4,097	Greater Ruman-		
1885.....	57	7,364	1900.....	1,650	2,780	ia.....		
1886.....	107	4,678	1901.....	1,568	2,163	1922.....	1,835	62
1887.....	57	3,768	1902.....	1,604	2,729	1923.....	5,704	13
1888.....	34	2,660	1903.....	2,738	2,921	1924.....	902	155
1889.....	78	2,876	1904.....	1,462	3,593	1925.....	1,763	677
1890.....	132	3,304	1905.....	1,524	5,112			
1891.....	66	1,011	1906.....	1,917	4,879			

1876-1900 (50).

1901-1913 and 1921-1925 (85).

PRODUCTION OF MUTTON

The peasants slaughter few mature sheep for home use during the summer months when the ewes are being milked, but during the summer, lambs of all ages are sent to the city markets. In winter, mature animals that are not suitable for milk production or reproduction are slaughtered at home or are shipped to the cities. In the spring of the year, large numbers of young lambs, 5 to 10 days old, are slaughtered for their pelts. There is no estimate of the number of such lambs that are killed in the spring or of home slaughtering of more mature sheep. Municipal slaughtering have been estimated at 1,321,928 head during 1923, as indicated in Table 44.

TABLE 44.—Mutton produced at slaughterhouses in Greater Rumania, 1923¹ (37, p. 91)

District	Animals slaughtered	Live weight	Estimated meat produced ²	Amount per capita ³
	Number	1,000 pounds	1,000 pounds	Pounds
Old Kingdom.....	725,731	11,212	1,212	1.52
Transylvania.....	476,071	20,666	3,505	1.73
Bessarabia.....	94,441	2,674	1,230	.41
Bukovina.....	35,695	1,866	775	.92
Total.....	1,321,928	46,309	22,724	1.36

¹ Does not include lambs slaughtered for their pelts at 5 to 10 days of age. This class of meat is plentiful in spring. Under ordinary conditions, sheep are seldom slaughtered by the farming peasantry for their own consumption except in late fall.

² Dressed meat estimated at 46 per cent of live weight.

³ See Table 4 for populations.

⁴ This is the sum of the animals slaughtered in each department as given above. The total given (57) is 1,311,628.

The mutton produced at city slaughterhouses in 1923, was estimated at 22,724,000 pounds, indicating an average per capita supply for all classes of the population of only 1.36 pounds.

No fresh mutton was exported or imported during 1923, but, as indicated in Table 45, 27,055 live animals were sent abroad. Of this number, 23,935 went to Turkey and a few hundred head to Hungary, Italy, Germany, Czechoslovakia, and Austria.

TABLE 45.—Sheep and goats: Imports and exports of the old Kingdom of Rumania, 1877-1913, and of Greater Rumania, 1922-1925

Year	Imports	Exports	Year	Imports	Exports	Year	Imports	Exports
Old Kingdom:			Old Kingdom—			Old Kingdom—		
1877.....	1,567	178,826	Continued.			Continued.		
1878.....	42,448	162,228	1892.....	3,832	55,835	1907.....	3,211	4,656
1879.....	15,816	200,899	1893.....	4,294	25,895	1908.....	222	1,405
1880.....	40,742	153,216	1894.....	1,280	46,021	1909.....	178	12,375
1881.....	25,137	114,857	1895.....	3,267	37,370	1910.....	404	9,151
1882.....	56,291	136,070	1896.....	1,763	30,404	1911.....	122	4,344
1883.....	25,502	159,579	1897.....	2,803	11,532	1912.....	111	2,363
1884.....	24,786	170,692	1898.....	3,325	35,834	1913.....	11	11,751
1885.....	22,285	117,809	1899.....	2,438	24,120	Greater Ruma-		
1886.....	34,256	50,941	1900.....	1,011	22,305	nial.....		
1887.....	6,408	75,694	1901.....	3,677	24,271	1922.....	97	25,281
1888.....	8,853	74,187	1902.....	2,471	20,010	1923.....	136	27,055
1889.....	8,595	57,333	1903.....	4,423	19,069	1924.....	12	3,414
1890.....	6,644	51,107	1904.....	1,048	11,551	1925.....	27	48,463
1891.....	8,553	71,253	1905.....	2,639	12,040			
			1906.....	749	15,552			

1877-1900 (50).

1901-1913 and 1922-1925 (55).

SWINE

The native swine in the mountain regions of Transylvania, the old Kingdom, and Bukovina are the small, almost wild, razorback hogs called "Stoici." In the lowlands is found the swamp hog, Baltaret, which is an unimproved animal of ancient origin. In Bessarabia under the Russians, the native breeds have almost disappeared, having been much improved by the introduction of modern English breeds. In the lowlands of Transylvania is found the Hungarian Mangalica hog. This hog occurs in the old Kingdom under the name of Mangolitz, where are also found an Asiatic breed called Palatin.

The reproduction of these swine is largely a matter of accidental mating. Every peasant household has its quota of pigs that scavenge around under foot everywhere. On Christmas, according to ancient custom, every household has a fat pig for dinner. In the fall hogs are slaughtered and the flesh is salted and smoked for summer use.

On the estates the best improved breeds of swine are to be found. Yorkshires and Berkshires are most common.

Before the World War, or in 1910 and 1911, the territories now comprised within the boundaries of Greater Rumania carried about 3,249,000 swine. In 1921 there was a decrease below the pre-war normal numbers in Transylvania and Bukovina; whereas increases in other parts of the Kingdom brought the total up to 97 per cent of pre-war. During the next five years there have been seasonal changes in different parts of the Kingdom, as indicated in Table 46.

TABLE 46.—Swine: Number in Greater Rumania, pre-war and 1921-1926 [In thousands—i. e., 000 omitted]

District	Pre-war	1921	1922	1923	1924	1925	1926
Old Kingdom.....	1,021	1,285	1,448	1,283	1,474	1,436	1,551
Durostori and Callara.....	28	41	44	36	44	36	44
Transylvania.....	1,510	1,245	1,070	962	1,015	1,101	1,171
Bessarabia.....	475	473	508	513	480	513	528
Bukovina.....	219	96	121	123	128	136	118
Total.....	3,249	3,150	3,147	2,925	3,133	3,088	3,168

Same sources as in Table 37.

Numbers of swine in Transylvania have tended to decrease since the World War, being 230,000 less in 1924 than in 1921. This decrease has probably been due to the poor condition of the hog market in central Europe. Before the war a considerable portion of the heavy shipments of swine from Hungary to the Vienna market originated in the corn belt of the Banat and Crisana. In the mountainous regions of Transylvania almost all of the swine were found on the small land holdings in 1911, (Table 36) but, in the lowlands, middle-sized and large farms carried on pork production (Table 47) on a commercial scale, either shipping their finished product directly to the Vienna or Prague markets or semifinished hogs to the feeding establishments about Budapest or in western Hungary. As indicated in Table 47, the largest estates (more than 1,422 acres) averaged more than 250 head of hogs each in 1911. When conditions of the market are unfavorable, these commercial establishments reduce the number of swine on feed. It is probable that when conditions of trade in central Europe improve the lowlands of western Transylvania, which also produce large surpluses of corn, will revive their former hog industry.

TABLE 47.—*Livestock and owners of livestock in 1911, classified according to size of land holdings in the lowlands of Crisana¹ and Banat¹ ceded by Hungary to Rumania*

Size of holding		Own- ers of animals	Horses	Cattle	Swine	Sheep	Goats	Mules	Don- keys
Arpents ²	Acres								
Less than 1.....	Less than 1.4.....	Number	Number	Number	Number	Number	Number	Number	Number
1 to 5.....	1.4 to 7.1.....	68,779	35,681	112,534	92,833	80,264	24,508	0	116
5 to 10.....	7.1 to 14.2.....	48,154	48,827	110,992	82,453	97,412	11,309	10	191
10 to 20.....	14.2 to 28.4.....	38,992	88,658	112,628	98,382	128,077	5,206	2	136
20 to 50.....	28.4 to 71.1.....	19,628	60,774	84,966	99,391	124,251	2,472	3	163
50 to 100.....	71.1 to 142.2.....	3,073	18,307	23,626	30,443	46,293	753	3	98
100 to 200.....	142.2 to 284.4.....	1,115	6,784	13,178	15,092	30,447	133	2	52
200 to 500.....	284.4 to 711.1.....	827	6,298	12,494	15,067	30,447	133	2	52
500 to 1,000.....	711.1 to 1,422.....	271	5,121	23,626	33,790	45,517	68	10	140
1,000 and over.....	1,422 and over.....	142	13,214	67,772	113,665	166,042	86	64	308
Without land.....		68,968	29,193	59,575	146,631	42,898	8,017	13	707
Total.....		238,485	279,615	637,627	767,956	933,783	55,411	123	2,486

¹ Calculated from (15, 1914, pp. 129-137).

² Includes territory ceded from the Provinces of Ugocsa, Szatmar, Bihar, Arad, Csanad, Sillag, Temes, and Torontal.

³ 1 arpent = 1.422 acres.

In the old Kingdom, pork was produced almost exclusively for household use. In 1900, there were 730,260 households that possessed 1 to 5 head of swine. Only 29,473 households possessed 6 to 20 head. There were 1,399 establishments with 21 to 50 and only 887 proprietors with more than 50 swine each.

During the late seventies and early eighties of the last century, the old Kingdom of Rumania, as indicated in Table 48, exported between 100,000 and 200,000 hogs each year.³⁵ But the industry had rapidly dwindled, so that just before the World War only a few animals were sent abroad.

³⁵ An average of 54,671 hogs were sent to the commercial feeding establishment of Kőbánya near Budapest each year between 1876 and 1880. Under pressure of Serbian competition and the development of the Hungarian swine industry this business finally discontinued in 1896.

TABLE 48.—*Swine: Imports and exports of the old Kingdom of Rumania, 1877-1913, and of Greater Rumania, 1922-1925*

Year	Imports	Exports	Year	Imports	Exports	Year	Imports	Exports
Old King- dom.	Number	Number	Old King- dom—Con.	Number	Number	Old King- dom—Con.	Pounds	Pounds
1877.....	1,173	185,962	1892.....	72	10,799	1905.....	215,863	5,644
1878.....	1,314	142,506	1893.....	72	18,557	1906.....	258,311	33
1879.....	312	153,607	1894.....	364	23,141	1908.....	8,719	6,182
1880.....	939	92,143	1895.....	486	14,252	1909.....	15,459	63,791
1881.....	715	178,420	1896.....	425	39,048	1910.....	848,515	16,116
1882.....	1,630	136,317	1897.....	94	15,511	1911.....	288,558	1,332
1883.....	190	143,654	1898.....	227	40,804	1912.....	16,182	839
1884.....	229	75,618	1899.....	95	7,423	1913.....	2,134	331
1885.....	183	36,275	1900.....	38	2,192	Greater Rumania:		
1886.....	88	45,618	1901.....	47	3,121			
1887.....	25	22,276	1902.....	34	679			
1888.....	85	18,662	1903.....	70	59			
1889.....	66	14,856	1904.....	100	39			
1890.....	77	3,887	1905.....	1,435	17	1922.....	1,206	26,329,278
1891.....	251	5,227				1923.....	8,660	66,791,664

1877-1900 (50). 1901-1913 and 1922-1925 (50).

Since the World War, pork production in these regions has fluctuated somewhat with the amount of the corn crop, so that the exportable surplus of pork has also varied greatly from year to year. The consuming centers in Hungary, Austria, Czechoslovakia, and central Europe have reestablished contacts with their former sources of pork supply in western Transylvania and weekly shipments of hogs are made to the western markets.

In other parts of Rumania, it is probable that swine production will be restricted more nearly to the requirements of farm families and the demands of local markets. But in the Banat and Crisana, pork production on a commercial scale can be confidently awaited as a future development.

PORK CONSUMPTION

Pork is the staple meat diet of the Rumanian peasant. It is not possible to estimate the number of swine slaughtered on farms. In comparison with cattle and sheep, only a small number of hogs are killed for city consumption. As indicated in Table 49, a total of 401,758 hogs were butchered at municipal slaughterhouses in 1923. The pork equivalent of this number of hogs has been estimated at 71,643,000 pounds, which, prorated over the entire population of the Kingdom, amounts to only 4.28 pounds per capita.

TABLE 49.—*Pork produced at slaughterhouses in Greater Rumania, 1923¹ (37, p. 91)*

District	Animals slaugh- tered	Live weight	Estimated meat produced ²	Amount per capita ³
	Number	1,000 pounds	1,000 pounds	Pounds
Old Kingdom.....	141,010	26,463	25,888	3.50
Transylvania.....	199,579	52,473	37,256	6.79
Bessarabia.....	34,707	8,548	6,333	2.11
Bukovina.....	26,462	3,022	2,146	2.55
Total.....	401,758	100,906	71,643	4.28

¹ This probably represents urban consumption only, as almost every peasant family has roast pork on Christmas, and in the fall almost every household cures pork by salting or smoking for summer use. It is a common practice to kill pigs at the suckling stage and to roast them whole. The amount of pork consumed per capita by the peasants in Greater Rumania is doubtless more than here indicated for the mean of the total population.

² Dressed meat estimated at 71 per cent of live weight.

³ See Table 4 for populations.

MULES, DONKEYS, AND GOATS

The use of mules and donkeys in Rumania is restricted to a few thousand occurring incidentally on larger farms and in cities. There is no well-developed mule production as in Spain, France, or Italy. The influence of these animals upon the agricultural situation in greater Rumania is negligible.

Goats are found in considerable numbers among the poor peasants in the mountain districts and the poorer class of laborers in cities. Before the World War, as indicated in Table 50, there were about 528,000 goats in the territories now comprising Greater Rumania. Since the war, goat numbers had run higher than during 1909-1913 until 1925, when there was a decrease of a few thousand, bringing the total down to 494,000. In 1926 there was a further decrease to 477,000.

TABLE 50.—Goats, mules, and donkeys: Number in Greater Rumania, pre-war and 1921-1926

[In thousands—i. e., '000 omitted]

District	Goats	Mules	Donkeys	District	Goats	Mules	Donkeys
Old Kingdom, 1911.....	187	14	(7)	Greater Rumania:			
Durotor and Callara, 1910.....	104	(7)	3	1921.....	574	2	11
Transylvania, 1911.....	208	(7)	5	1922.....	552	3	10
Bessarabia, 1910.....	26	(7)	(7)	1923.....	585	3	11
Bukovina, 1910.....	3	(7)	(7)	1924.....	531	4	9
				1925.....	494	2	10
Total, pre-war.....	528	4	8	1926.....	477	2	11

Same sources as in Table 37.

¹ Includes donkeys.

² Not separately stated but included with mules.

³ Less than 500.

⁴ Not separately stated.

Goats are maintained for milk production. As a rule all kids are slaughtered except those intended for replacement. There is no record of the numbers of kids and goats slaughtered for home use; but in 1923, city slaughterhouses reported 78,150 goats killed, from which 4,734,000 pounds of meat were obtained. Prorated over the entire Rumanian population this is equivalent to only 0.28 pound per capita. (Table 51)

TABLE 51.—Goat meat produced at slaughterhouses in Greater Rumania, 1923 (37, p. 91)

District	Animals slaughtered	Meat produced	
		Total	Per capita ¹
	Number	1,000 pounds	Pound
Old Kingdom.....	35,912	1,582	0.21
Transylvania.....	39,752	3,037	.35
Bessarabia.....	982	96	.02
Bukovina.....	1,504	59	.07
Total.....	78,150	4,734	.28

¹ See Table 4 for populations.

FEEDING LIVESTOCK

Before the World War the area of meadows and pastures in Greater Rumania was estimated to be 12,770,000 acres and there were 1,307,000 acres of forage plants or a total of 14,077,000 acres of grasslands.³⁶ This would indicate for each 100 acres 13.5 horses; 41.1 cattle; 23.1 swine; 79.1 sheep; and 3.8 goats or 161 animals in all.

Livestock also have the run of fallow lands and stubble fields, and some portions of the forest lands, but the forests are uncertain sources of grazing. The meadows and pastures are unimproved and of poor quality. In the old Kingdom of Rumania, the pastures have been common village property since 1908. Livestock are grazed on these commons from early spring until late fall. In the cities some grain is given to horses, cattle, and sheep, but in the country the peasant usually feeds straw and cornstalks and occasionally some hay.

Swine are given a little grain a few weeks before they are slaughtered. In summer, they live on pasture or forage in the village streets and yards. In winter they are underfed and suffer from hunger.

Livestock are seldom kept in a 4-walled shelter and often run in the open during winter. The use of straw as bedding material would usually be considered a waste.

Since peasant livestock receive little or no grain in winter they are turned out in spring in a half-starved condition. The meadows and pastures are kept so closely cropped that they are practically barren when the drought of summer comes. There is no reserve grass, and if drought is protracted the villagers are obliged to sacrifice their reserve stock. Often the poorer peasants are reduced to selling their work animals. Thus in 1924 the general shortage of feed throughout Rumania was followed by a sharp reduction in livestock. The enumeration in 1925 shows 364,000 fewer head of cattle than in 1924; 662,000 fewer sheep, 37,000 fewer goats, and 30,000 fewer horses.

MEAT PRODUCTION AND CONSUMPTION

Meat consumption in Rumania is very restricted; that of the old Kingdom has been estimated at 20.9 pounds per capita before the World War, by G. Jonescu-Sisesti in *Rumänien Bäuerliche Landwirtschaft* (19). Jonescu-Sisesti has also estimated the post-war consumption of meat in cities of Greater Rumania at 113.2 pounds as contrasted with 7.7 pounds in the rural districts. If these consumption rates be applied to the rural and urban population as reported in 1923, the mean consumption for all classes was about 30 pounds per capita. In 1923 meat production of the old Kingdom amounted to 658,563,000 pounds, according to previous tables. Even subtracting 4,061,000 pounds, the exports of meat from total Greater Rumania during 1923 would indicate a consumption of 654,502,000 or 39.1 pounds per capita, which is about one-third higher than Jonescu-Sisesti's post-war estimate and almost twice the pre-war estimate for the old Kingdom. This figure does not include sheep and hogs slaughtered by peasants for home use.

³⁶ Fallow lands produce grass for hay and grazing but with changes of boundaries there has been a change in the manner in which fallow lands are classified so that it is not possible to compare post-war with pre-war fallow areas.

A great advance in the standard of living among all classes of Rumanian society is thus indicated.

Before the World War, almost all the cattle slaughtered in the old Kingdom were unfattened or, at best, were only grass fed. Distilleries fattened a few head of cattle annually for city demand, and occasionally a peasant or an estate owner stall-fed a few head in the fall after the season's work had been completed. But these cases were rare, and usually the slaughter weights of cattle were low. (Table 52.)

TABLE 52.—Live weights of cattle marketed in the old Kingdom of Rumania, pre-war (19, p. 80)

Classification	Unfattened	Fattened on grass	Stall fed
Oxen:	Pounds	Pounds	Pounds
Moldavian	428 to 1,036	525 to 1,190	922 to 1,367
Mountain	331 to 772	450 to 1,036	772 to 948
Different crossbreeds	373 to 1,323	483 to 1,102	661 to 739
Cows:			
Moldavian	397 to 728	474 to 974	661 to 772
Mountain	344 to 628	417 to 772	485 to 750
Crossbreeds	381 to 617	364 to 794	617 to 573
Calves:			
Moldavian	66 to 287	90 to 397	198 to 441
Mountain	55 to 243	104 to 309	132 to 287
Crossbreeds	62 to 216	119 to 330	159 to 220

CONCLUSIONS REGARDING RUMANIAN AGRICULTURE

It is probable that the general trend of agriculture in Greater Rumania will be away from the extensive production of cereals, particularly wheat, with its large marketable surpluses, and will probably be toward a so-called "intensive agriculture." This does not mean intensive in the western sense of the term. It merely means that the general tendency in peasant agriculture is to maintain more domestic animals per acre of land holding than is the case on large estates. The natural consequence of the land reform will thus culminate in somewhat larger numbers of livestock in Greater Rumania than were customary before the World War. Although little grain is fed to livestock, except in the western lowlands of the Banat and Crisana, a general increase in livestock numbers will tend toward somewhat larger quantities of field crops being fed on the farms and smaller surpluses of field crops being available for market.

There appears to be an increase in meat consumption in Greater Rumania in keeping with the higher standard of living adopted since the war. This should stimulate meat production and will tend to absorb large numbers of animals between livestock enumeration periods, so that a considerable expansion of the animal industry may not be proportionately discernable from published statistics. At the same time, the effect upon reducing the amounts of marketable surpluses of cereals might be appreciable.

There appears to be a trend toward increased wheat consumption in Greater Rumania; which should also depress marketable surpluses. However, the great falling off in cereal exports from Rumania is the result of the shift from commercial production of cereals on large estates to small peasant-farming practices following the sweeping

land reform. The most apparent effect of the land reform upon cereal production has been a positive shift from seeding winter grain to increased seeding of spring grains. The fall seeding for the wheat crop of 1927 was 1,234,381 acres less than for the crop of 1926; rye was 81,457 acres less, and barley 10,880 acres less. This decrease is attributable to a certain extent to the drought of September and October, which hindered plowing. At the same time it requires greater foresight and initiative to seed grain in the fall to be harvested the following year than it does to rush any sort of crop into the ground in spring. The Rumanian peasant lacks both foresight and initiative, and consequently there is a greater tendency toward haphazard spring seeding than formerly.

The peasant is a very mediocre farmer as a rule, and in Rumania the peasant methods of agriculture are archaic. Consequently, yields per acre up to 1926 have been much lower than the very modest yields obtained before the World War. In 1926, as indicated in Table 18, barley, oats, and corn ranged somewhat above pre-war, but the mean yield per acre for all five chief cereals was still half a bushel less than the 1909-1913 average.

Thus not only has there been a shift from wheat and rye production toward increased corn, barley, and oats production, but because of low yields per acre the exportable surpluses of bread cereals are not so large as they otherwise would be.

The quality of peasant production is very low. Under the estate system of farming, a large proportion of export grain was of uniform and high quality and Rumania enjoyed a certain reputation for the excellence of its exports. Under the present retrogressive system of peasant agriculture, it is difficult to assemble a cargo of standard grades of grain, and foreign buyers are having recourse to establishing resident agencies in Rumania to buy in place such grain as will meet their specific requirements. This, however, is expensive and the cost of handling the crop is ultimately chargeable against the profit obtainable by the producer.

As with grain, the quality of livestock is poor. There is no such thing as a beef breed of cattle in Rumania and dairy stock is mediocre, except in the western departments of Transylvania, where the quality of beef, pork, and mutton produced compares favorably with that fattened in central Europe. But in the departments south and east of the central mountain ranges the quality of meat animals sent to market would hardly fit them to meet the requirements of the western European demand.

It is probable that increased population and changes in living standards, together with postwar retrogression in agricultural production have so depleted potential surpluses that the territories now constituting Greater Rumania will not for many years exercise the influence upon western markets that they enjoyed before the World War.

THE AGRICULTURAL SITUATION IN BULGARIA

Bulgaria suffered less, territorially, in consequence of the World War than did any of Germany's other allies. In fact the area of the country as fixed by the provisions of the treaty of Neuilly is 2,626 square miles greater than it was at the outbreak of the war of the Balkan allies against Turkey. Nevertheless Bulgaria has undergone pronounced territorial changes that have had a profound influence upon the economic life of the nation.

The present area of Bulgaria, according to the terms of the treaty of Neuilly, comprises 39,825 square miles, and is thus about the size of the State of Ohio.³⁷

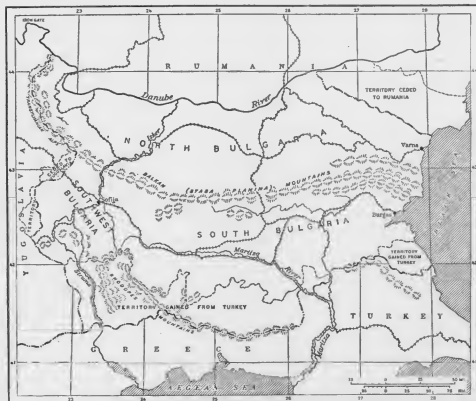


FIGURE 3.—MAP OF BULGARIA

Bulgaria ceded to Rumania in 1913 parts of its richest cereal-producing Provinces along the northeastern frontier, but acquired a very considerable territory from Turkey on the south. This acquired territory is a tobacco region not producing sufficient cereals to meet local demands. Consequently Bulgaria occupies a less significant status among European wheat-exporting countries than was the case before the World War.

Between 1913 and 1919 the area of Bulgaria fluctuated considerably with the vicissitudes of war. At the close of the campaign against Turkey, Bulgaria acquired territories which extended the southern frontiers of the Kingdom to the Aegean Sea. This newly acquired territory, to the south is mountainous in character and consists, for the most part, of barren stretches. There were also extensive forests and pastures, but only a small percentage of the total area could be profitably cultivated to field crops. At the same

³⁷ The Kingdom of Bulgaria, occupying the north-central portion of the Balkan Peninsula, lies between the parallels 41° 12' 28" and 44° 12' 39" north latitude, or at about the same distance from the Equator as the State of Iowa. In longitude it lies between the meridians 29° 27' 14" and 28° 3' 34" east (Greenwich).

time that this agriculturally poor territory was acquired to the south, Bulgaria ceded, in the way of compensation to Rumania, portions of five of the richest grain surplus producing Provinces along the northeastern frontier in the Dobruja.

By a special convention with Turkey, in 1915, Bulgaria, before entering the World War, acquired additional territory on the south and, invading Dobruja, immediately reoccupied the counties that had so recently been ceded to Rumania. At the end of the World War Bulgaria withdrew from the ceded Rumanian territories and, according to the terms of the treaty of Neuilly, relinquished to Yugoslavia 990 square miles and to Greece 3,364 square miles of territories on the south and west. This left the present area of the Kingdom 39,825 square miles. (Fig. 3.)

The extent of these changes is shown in the following statement.

Modifications in the territory of the Kingdom of Bulgaria (8, Ann. 15-16, p. [XXXIII])

1. After the war of 1912-13. Treaty of Bucharest:	
Area of Bulgaria—	Square miles
Before the war	37,199
Ceded to Rumania	2,971
Less ceded territory	34,228
Area gained from Turkey	8,952
Total in 1913	43,180
2. After the convention of 1915 with Turkey:	
Area gained from Turkey	999
Total in 1915	44,179
3. After the treaty of Neuilly in 1919:	
Area ceded to Yugoslavia—	
Old territory	596
New territory	394
Total	990
Area ceded to Greece—	
New territory	3,364
Total area ceded to Greece and Yugoslavia	4,354
Present area of Bulgaria	39,825
Old territory retained (residual Bulgaria)	33,632
New territory gained	6,193
Total area	39,825

PHYSICAL CHARACTERISTICS OF THE COUNTRY

The low Balkan Mountain range, the Stara Planina (Old Mountain) traverses Bulgaria from the Black Sea westward to the frontier of Yugoslavia. Between this mountain range and the Danube River lies a broad, fertile, rolling plain sloping to the north, which is well watered by the Isker, Osma, Jantra, and Lom Rivers. This is called the district of north Bulgaria. It occupies 16,757 square miles. Its soil is a deep, black, fertile loess. Average annual rainfall ranged between 23.97 and 24.89 inches during the 5-year period ended 1923. This is the greatest cereal surplus-producing region of the Kingdom.

To the south of the Balkan Mountains, the coastal plains of the Black Sea and the central valley of the Maritsa extend to the foothills of the Rhodope Range of mountains. These coastal plains and the valley, together with the mountainous regions acquired from Turkey as far west as the Mesta River, form the district of south Bulgaria, which has an area of 16,316 square miles. The soils of the plains and valleys are fertile. The average rainfall during the 5-year period ended 1923 ranged from 22.67 to 27.62 inches annually.

The famous rose-oil industry is located on the southern slopes of the Balkan Mountains. To the south and in the mountainous valleys of the Rhodope Mountains tobacco is the most important crop. The valleys and plains of south Bulgaria are devoted to the production of cereals, the surpluses of which are sufficient to balance the deficit production of the newly acquired territories and to leave a considerable margin for export abroad.

The western portion of Bulgaria, south of the Balkan Range, is a broad plateau broken to the south by the ranges of the Rhodope Mountains. This is the district of southwest Bulgaria, which has an area of 6,752 square miles. It includes the upper basins of the Struma and the Mesta, as well as the upper valley of the Maritsa (which flows into the Aegean Sea) and the upper valley of the Isker (which flows into the Danube River). The soils of these elevated regions are not so well adapted to wheat as are those of the districts of the north and south. Rainfall averages 26.36 inches. The production of tobacco in the south and of fruit in the north are important industries. The district as a whole does not produce sufficient cereals to cover local requirements.

About 25,708 square miles, or 64.6 per cent of the total area of Bulgaria, lie between sea level and an altitude of 500 meters (1,640 feet), within the range best adapted to intensive agriculture.

UTILIZATION OF THE LAND

There is no record of the manner in which the lands acquired from Turkey were utilized before the Balkan Wars. An approximate estimate of the agriculturally potential value of the ceded territories, as contrasted with acquired territories, can be obtained by comparing the manner in which the lands of the ceded districts and the residual counties of Bulgaria were utilized in 1912 with the manner in which lands were utilized in these residual counties and in the acquired districts in 1923.

Peasant agriculture predominates in all these districts. It is the characteristic of the peasant to conduct his farm operations on about the same scale from year to year. He may rotate the crops on his plowlands, but the extent of these plowlands in relation to meadows and forests remains remarkably constant year in and year out until some disrupting series of events breaks up the routine, after which he again settles down to a seasonal round.

TABLE 53.—Utilization of land in Bulgaria, 1912, 1923, and 1924

Utilization of land	1912 (8, Ann. 15-16, p. XXIII, B 12; 8, 1912)						1923 (8, 1923)						1924 (8, Ann. 17, p. 127)	
	Old Kingdom of Bulgaria		Ceded territory		Residual territory		Residual territory		Acquired territory		Total Bulgaria		Total Bulgaria	
	1,000 acres	Per cent	1,000 acres	Per cent	1,000 acres	Per cent	1,000 acres	Per cent	1,000 acres	Per cent	1,000 acres	Per cent	1,000 acres	Per cent
Pleasant land:														
Cereal:	6,337	70.3	796	64.5	5,541	71.5	5,169	65.7	227	56.9	5,396	65.4	5,592	66.3
Leguminous plants:	212	2.4	79	6.4	133	1.7	138	1.8	4	1.1	142	1.7	191	2.3
Industrial plants:	83	.9	3	.2	80	1.0	155	2.0	37	9.8	192	2.3	188	2.2
Roots and tubers:	17	.2	(1)	.1	17	.2	67	.8	5	1.3	72	.9	86	1.0
Vegetables:	300	3.4	16	1.2	83	1.1	87	1.1	2	.5	89	1.1	86	1.1
Forage plants and temporary meadows:	530	5.9	66	5.3	464	6.0	516	6.5	8	2.1	524	6.4	602	7.1
Fallow:	1,710	19.0	270	22.4	1,434	18.5	1,735	22.1	96	25.3	1,831	22.2	1,698	20.0
Total:	8,989	100.0	1,235	100.0	7,754	100.0	7,867	100.0	370	100.0	8,246	100.0	8,442	100.0
All land:														
Plowland:	8,989	37.8	1,235	54.1	7,754	36.0	7,867	36.5	370	9.5	8,246	32.4	8,442	33.1
Natural meadows:	885	3.7	34	1.5	851	4.0	767	3.6	21	.5	788	3.1	798	3.1
Pastures:	2,250	9.5	1,224	9.8	2,022	9.4	1,930	9.0	1,367	9.3	2,297	9.0	2,297	9.0
Vineyards:	132	.6	8	.3	144	.7	136	.6	3	.1	139	.6	136	.6
Orchards and gardens:	29	.1	2	.1	27	.1	30	.2	2	.1	38	.1	44	.2
Rose gardens:	21	.1	1	.1	20	.1	20	.1	1	.1	21	.1	21	.1
Forests:	17,004	22.4	1,684	20.4	6,310	29.3	5,993	27.8	1,130	28.7	7,123	28.0	7,132	28.0
Unproductive:	4,472	18.8	86	3.8	4,386	20.4	4,784	22.2	6,053	51.8	16,837	20.8	16,607	25.9
Total:	23,807	100.0	2,283	100.0	21,524	100.0	21,524	100.0	3,964	100.0	25,488	100.0	25,488	100.0

¹ Less than 500 acres.

² Data for 1905 from (8, Ann. 4, p. 127).

³ Estimated to be the same ratio of pastures to forests as for the old Kingdom of Bulgaria.

⁴ Estimated to be the same ratio of pastures to forests as for residual territory, 1912.

⁵ Estimated to be the same as estimate for 1923.

⁶ Estimated from data given in (8, Ann. 4, p. 170).

⁷ Data for 1924 from (8, Ann. 15-16, p. B 35).

⁸ Adjusted to balance total.

The outstanding differences to be found in land utilization when comparing the old Kingdom of Bulgaria with present Bulgaria are that there were about 547,000 acres less plowland and 2,135,000 more acres of unproductive land in 1924 in the territories comprising present-day Bulgaria than in the old Kingdom in 1912. (Table 53.)

Bulgaria gained from Turkey on the south 3,963,000 acres, of which only 9.5 per cent was reported to have been plowland in 1923; whereas 51.8 per cent was reported to be nonproductive. On the other hand, Bulgaria ceded to Rumania, on the northeast, and to Yugoslavia, on the west, 2,283,000 acres, of which 54.1 per cent was plowland and only 3.8 per cent of which was reported to be unproductive in 1912. These differences have been of profound significance.

If we compare the utilization of the land in 1912 in the residual portion of Bulgaria (that is, that portion of the old Kingdom remaining after deducting the territories ceded to Rumania and Yugoslavia) with the utilization of the land in 1923 in this same territory, it will be noted that there was a decrease in cereal lands, although plowlands were reported in somewhat greater acreage than formerly, and there was a marked increase in fallow lands.

The trend of these changes indicates a decreased potential cereal production in proportion to the area of the country. This is particularly significant since the bulk of the acreage of cultivated crops in Bulgaria is devoted to cereals.

POPULATION

The old Kingdom of Bulgaria had a population of 4,337,513 in 1910, or 116.6 per square mile. In 1920 there were 4,846,971 inhabitants²⁸ within the new boundaries of Bulgaria, or 121.7 per square mile.

There are no large cities in Bulgaria. Sofia, the capital and metropolis, had only 154,025 inhabitants in 1920. Plovdiv (Philippopolis) came second with 63,415, followed by Varna with a population of 50,810, and Russe with 41,652 inhabitants.²⁹ There were 75 seats of state, province and township governments and 17 other cities which did not have administrative functions. The total city population in 1920 comprised 966,375 Bulgarian citizens, Russian immigrants, 74,174 refugees from the former Turkish territories to the south that have been incorporated into the Kingdom of Greece, and other individuals.

The 966,375 city dwellers lived in 241,659 family groups or households, averaging about 4 persons to each establishment. The households in the rural districts, on the other hand, were larger, averaging 5.7 persons each. The native rural population, which lived in 4,214 villages and 1,353 hamlets, was reported at 3,880,596 persons who lived in 675,593 family groups, in 1920. There were also 68,133 Bulgarian refugees from the south, Russian immigrants, and others living outside of cities.

Those living in rural districts in 1920 constituted 80.1 per cent of the total population; but all of those living outside of cities were not engaged in agriculture. A large number of the city dwellers, however, earned their livelihood by farming, so that 81.3 per cent of those actively employed in 1920 were classified as agricultural workers, hunters, and fishermen. (Table 54.) As the latter two classifications include very few, it is probable that the actual farming population is fully 80 per cent of the total.

TABLE 54.—Population of Bulgaria actively employed, classified by occupation, 1910 and 1920 (8, Ann. 16-16, pp. 94, 98)

Occupation	Old boundaries 1910		New boundaries 1920	
	Number	Per cent	Number	Per cent
Agriculture, hunting, and fishing.....	1,820,801	81.1	2,143,121	81.3
Mining, etc.....	1,947	.1	3,544	.2
Industry.....	178,437	8.0	204,862	7.8
Communication and transport.....	27,990	1.2	33,968	1.3
Commerce, bank, and credit.....	68,109	3.1	70,669	2.7
Public service and liberal professions.....	54,312	2.4	72,990	2.8
Public force.....	34,999	1.5	41,267	1.5
Landed proprietors.....	15,362	.7	27,736	1.0
Domestic servants.....	22,439	1.0	18,812	.7
Day laborers.....	14,722	.7	9,488	.4
Unknown.....	4,062	.2	7,007	.3
Total.....	2,244,180	100.0	2,635,389	100.0

Compared with agriculture other occupations engage very insignificant numbers of the population, who for the most part live in self-supporting homes based upon the tillage of the soil.

²⁸ The number of inhabitants in December, 1925, was 5,105,800 or 128.2 per square mile.
²⁹ Some of the larger cities with their populations in 1920 were: Silven, 28,500; Pleven, 27,446; Stara Zagora, 23,314; Sumen, 23,738; Burgas, 21,170; Yambol, 19,875; Khashtovo, 19,418; and Pazardzik, 19,562.

The Bulgarians, like the Greeks and the Rumanians, are a mixed people. Before the Christian era the peninsula between the Black and Adriatic Seas was successively overrun by the Odrissae, the Macedonians, and the Celts. In the first century B. C. it was conquered by the Romans, and Romanized Wallachians, from north of the Danube, settled in large numbers in what is now north Bulgaria. During the great migration of the nations the Balkans were penetrated by the Slavs. In the seventh century a horde of Fino-Tartars called "Bolgars" or "Bol-Agalars" crossed the Danube, conquered the scattered Slavic clans, and welded them into a united whole. This Tartar element, although giving governmental direction to the newly organized nation, was numerically weak and their language was finally absorbed by the Slavs. The basic element in the Bulgarian nation is Slavic, but there are strong admixtures of Greek, Celt, Roman, Wallachian, and Mongolian. The Bulgarians are the most energetic and industrious people in the Near East and possess the characteristics to utilize to the utmost the elements of soil and climate with which nature has endowed their country.

LAND TENURE

In most countries the pre-war contrast between the size of the vast estates of the ruling classes and the scattered fields of the peasants was so great that any land owned by a single individual up to 100 hectares (247.1 acres) was considered to be a "small holding." According to the latest report (1908), the peasants of Bulgaria owned and operated about 94 per cent of the plowland of holdings of 247.1 acres or less. Only about 4 per cent of the privately owned plowlands was operated as large estates. Most of the remaining plowland belonged to the State and to various institutions. These lands were customarily rented to the peasants on shares or for cash, and were consequently farmed according to peasant traditions. This custom brought about 96 per cent of the plowland of the Kingdom under the peasant system of agriculture. (Table 55.)

Bulgaria was so decidedly a country of small farmers that, before the World War, any holding of more than 30 hectares (74.1 acres) was considered large. Fully 86 per cent of the plowland was operated as holdings of 74.1 acres or less. There are few large estates because the Kingdom of Bulgaria had been so recently established (1879) that there had not been time for a large landed nobility to become established. The former nobility, which was Turkish, had fled the country.

Up to 1879, and during the five preceding centuries, Bulgaria had been a Province of the Ottoman Empire whose Government was conducted, theoretically at least, according to the principles laid down in the Koran. According to the Koran, the earth belonged to Allah, who conceded the possession of portions of it to the faithful. The sultans, descended direct from Mahomet the Prophet, distributed the lands of conquered peoples to certain of these faithful ones, according to the importance of their services rendered to the cause of Islam. Under this system the conquering faithful had jurisdiction over vast domains and the conquered unfaithful were reduced to serfdom. This was the condition of Bulgaria for about 500 years. The Moslems were the overlords and the Christian Slavic-Bulgars were practically slaves.

TABLE 55.—Productive land in Bulgaria, classified by size of holdings, 1908
(8, Ann. 5-14, sec. B, p. 4, 17)

Class and size of land holding		Proprietors		Area		Total cultivated fields
Hectares	Acres	Total	Percentage	Total	Percentage	
Privately owned land:		Number	Per cent	Number	Per cent	Acres
Less than 2.....	Less than 5.....	424,898	45.5	1,157,087	7.0	481,452
2 to 5.....	5 to 12.....	212,418	22.8	2,535,615	15.4	1,598,197
5 to 10.....	12 to 24.7.....	174,110	18.7	3,240,007	20.8	2,377,223
10 to 20.....	24.7 to 49.4.....	94,528	10.1	2,996,806	27.6	2,335,440
20 to 30.....	49.4 to 74.1.....	17,304	1.9	507,007	1.9	708,389
30 to 40.....	74.1 to 98.8.....	5,017	.5	153,618	.5	297,975
40 to 50.....	98.8 to 123.6.....	1,033	.2	65,223	.2	162,900
50 to 100.....	123.6 to 247.....	2,223	.2	77,891	.2	292,927
100 to 200.....	247 to 494.2.....	154	(1)	7,031	.8	66,331
200 to 300.....	494.2 to 741.1.....	99	(1)	4,502	.8	59,945
300 to 500.....	741.1 to 1,235.5.....	21	(1)	1,165	.2	63,131
500 and over.....	1,235.5 and over.....	91	(1)	1,165	.2	63,131
Total.....		933,967	100.0	9,876,519	11,430,318	100.0
UNCLASSIFIED:						
State lands.....		1,035	10.9	9,159	1,879,269	22.7
County lands.....		12	.02	3,152	(1)	155
Village lands.....		3,639	38.2	18,758	5,973,614	72.0
School lands.....		1,281	13.4	8,224	171,018	2.1
Church lands.....		1,100	11.5	5,008	35,616	.4
Monastery lands.....		321	3.4	3,913	139,156	1.7
Mosque lands.....		392	4.1	1,339	16,224	.1
National-bank lands.....		149	1.6	2,445	6,013	.1
Agricultural-bank lands.....		1,427	15.0	33,916	65,611	.8
Various societies lands.....		174	1.8	1,189	10,616	.1
Total.....		9,530	100.0	84,013	8,294,319	100.0
Grand total.....				9,960,532	19,724,637	8,929,039

1 Less than 0.05 per cent.

2 In addition there were 21,919 acres of private household gardens, plowed fallow lands and cultivated fields of various societies.

3 Not separately stated; included in the 21,919 acres as indicated in note 2.

4 In addition, there were 4,082,336 acres classified as unproductive.

Following the liberation of Bulgaria from the Turkish yoke, by the armies of Russia, various laws were passed to ameliorate the position of the peasant. But it was not until December 15, 1890, that a general expropriation of former Turkish estates went into effect. The land was distributed at that time among those by whom it had been worked. The first census was taken in 1897. At this time 93.4 per cent of the privately owned land was worked as small or peasant holdings of less than 247 acres, and 77.7 per cent of the land was in holdings of from 5 to 74.1 acres. The holdings of less than 5 acres amounted to 6.6 per cent (7, p. 57).

The census of 1908 reveals but little change, 94.5 per cent of the privately owned land being in holdings of 247.1 acres or less; whereas 78.8 per cent was in holdings between 5 and 74.1 acres; and 7 per cent in holdings less than 5 acres.

More than four-fifths of the pasture lands (80.8 per cent) as well as 58.8 per cent of the forests were owned by the villages as common property. (Table 56.) The greater portion of the lands controlled by the Crown and by large private land owners consisted of forests. Schools, religious orders, and banks controlled only relatively small acreages of plowland.

TABLE 56.—Utilization and ownership of land in Bulgaria, 1908 (8, Ann. 5-14)

Utilization of land	Privately owned lands ¹	Village property	Schools, churches, monasteries, etc.	State and county	Banks	Total
	Acres	Acres	Acres	Acres	Acres	Acres
Plowlands.....	8,780,836	18,575	51,297	20,329	58,002	8,929,039
Meadows.....	962,373	4,487	14,830	1,679	3,479	986,848
Pastures.....	233,699	1,822,386	81,607	90,207	3,327	2,256,223
Vineyards.....	232,493	45	1,002	296	878	234,714
Gardens and orchards.....	55,241	844	2,012	269	215	58,601
Rose gardens.....	19,346		9	2	71	19,428
Forests.....	1,081,063	4,118,659	203,771	1,594,154	3,385	7,004,632
Other lands.....	52,976	8,818	1,416	172,375	267	233,632
Total.....	11,440,934	5,973,614	356,064	1,882,421	71,624	19,724,637

1 Privately owned lands also include 10,616 acres of various lands belonging to different societies, etc.

2 In addition there were 4,082,336 acres not classified.

In 1921 the land in Bulgaria was, for the most part, already in the hands of the peasants. Large estates were rare, consequently a land reform accompanied by a redistribution of the few large holdings that did exist could be expected to have but relatively little effect upon the agriculture of the country.

THE LAND REFORM

The recent land reform in Bulgaria was effected through the law of May 9, 1921, and was modified by the law of December 20, 1922,⁴ which provided that no family could own more land than it could work by itself. The average limit of the holding of plowland was fixed at 30 hectares (74.1 acres) provided the holding was worked by the proprietor himself and his family. Invalids of war and orphan minors who could not work the land themselves were allowed 10 hectares (24.7) acres each.

According to the purposes declared in the law of July, 1924, the final amount of land expropriated for the use of poor peasants amounted to 568,330 acres, as indicated in Table 57.

TABLE 57.—Expropriation of land in Bulgaria (7, p. 102)

Class of land	Land expropriated prior Dec. 31, 1923	Land allotted for expropriation by provisions of law of July 21, 1924 ⁴
	Acres	Acres
State lands.....	20,740	370,650
Communes.....	50,045	61,775
Monasteries.....	5,924	7,413
Agricultural banks.....		471
Privately owned lands.....	119,553	123,500
Land in litigation between communes and individuals.....	2,621	2,471
Other lands.....	2,981	
Total.....	201,762	568,330

* Original law was effected May 9, 1921; modifications occurred in December, 1922, and July, 1924.

* Includes 283 acres of forests.

* Later modified by the act of July, 1924.

Actual transfers of land have proceeded slowly. The latest available data are of December 31, 1923. Up to that time, only 201,762 acres had been turned over to needy peasants.

Compared with the land reform in greater Rumania, involving a change in ownership of 14,798,000 acres, the changes in land tenure in Bulgaria are not of far-reaching significance.

It will be noted from Table 56, that the State possessed only 20,329 acres of plowlands in 1908, whereas according to the reports made in 1923 (Table 57) the area of State lands not in forests that had been expropriated totaled 20,477 acres. The communes were dispossessed of 61,775 acres by the provisions of the law. At the end of 1923 transfers of these lands to the peasants equaled 50,043 acres. By the end of 1923 there remained only about 4,000 acres of privately owned lands, 1,500 acres of monastery lands, and 2,500 acres of bank lands, or 8,000 acres in all of the unexpropriated lands that might consist of plowlands.

The remaining 349,910 acres of State lands, and 11,732 acres of commune lands yet to be expropriated, probably consisted for the most part of forest and pasture lands.

It is probable that the full effect of the land reform in Bulgaria had been realized by 1925. As far as is observable from published data, the land reform does not appear to have been associated with any material changes in the Bulgarian agricultural system or in the general organization of Bulgarian farms.

FARM ORGANIZATION

By far the greater portion of Bulgarian farmers live in villages or hamlets, the most common size of which ranges between 501 and 750 inhabitants or 90 to 130 households. Each community has a pasture plot held in common, comprising lands which are usually too poor to be tilled or rough land broken by gullies, in the vicinity of the village. The cultivated fields of the peasant families surround the village and central pasture lands. Individual households possess different acreages of land just as in other countries. The unit plots of land comprising a holding are usually too small to be called a "field" in the American sense of the term and are seldom if ever consolidated into a single holding, but are scattered at varying distances and in various directions from the village. Only on the large estates were land units large enough to be cultivated with modern agricultural implements.

There were 429,565 households that did all the work on their own land in 1905 as contrasted with 160 large landowners and 485 large farmers who employed most of their labor. According to data assembled in 1908 the average size of the fields of a large landowner ranged around 4.08 hectares, or about 10 acres. The average size of a field of a middle-class landowner was 2.52 hectares, or 6.2 acres, whereas various groups of the small landowners possessed fields averaging from 3.6 acres down to 0.3 acre in each respective group.

AGRICULTURAL MACHINERY

It has been practically impossible to employ modern machinery in Bulgaria except on the fields of the large landowners, consequently the numbers of such machines have been limited. Thus in 1910 there

were for each 1,000 farms or land holdings the following equipment as given in *La Bulgarie Economique*, 1879-1911, (25, p. 156):

Farm equipment in Bulgaria for each 1,000 land holdings:	
Carts, wagons, etc.	849
Plows	231
Seeding machines	2
Harvesting machines	14
Threshers	2
Rakes and farming machines	134
All other machines	25

A large amount of farm work in Bulgaria is done by hand spading the land, broadcasting the seed, cutting the grain with a sickle, and beating out the kernels with a hand device or with animals, according to the ancient system described in the Bible.

The Americans were pioneers in introducing modern agricultural machinery into Bulgaria through their agencies established in Varna. The people, particularly those in north Bulgaria, still hold American-made implements in high esteem. But the necessity of disposing of Bulgaria's large reserves of tobacco has led to negotiating the sale of tobacco to Czechoslovakia, and in return the Agricultural Bank of Bulgaria, in 1927, purchased agricultural machines and implements from Czechoslovakia to the value of 35,000,000 leva (\$252,000).

According to the data in Table 58 the principal purchases of farm machinery during 1921-1925 consisted of plows followed by threshing machines.

TABLE 58.—Agricultural machinery: Value of imports, average 1921-1925

Item	Value	
	Leva	Dollars ¹
Plows, all sorts	23,320,000	181,792
Threshing machines	22,620,000	171,912
Rolls, hay balers, etc.	15,420,000	101,962
Scythes, sickles, hoes, forks, rakes, etc.	12,920,000	98,192
Tractors	9,620,000	73,112
Winnowers, screeners, etc.	6,960,000	53,048
Reapers, mowers, hay rakes	1,940,000	14,784
Total	91,420,000	694,792

Averaged from total 5 years given in excerpt from Annual Report upon Commerce and Industries for 1926, from Consul Stuart Lupton, Sofia, Bulgaria, Mar. 24, 1927.

¹ Average value of the lev during 1921-1925 was about 0.76 cent.

There is little prospect of any considerable extension in the use of agricultural machinery or of a radical change in the present system of agriculture in Bulgaria unless the holdings of the peasants are consolidated into fields of larger size. It is, moreover, necessary to obtain the consent of a large percentage of the villagers before steps toward consolidation can be taken. Many of the peasants are passionately attached to their particular plots of land. Although it is desirable to have larger unit fields, the difficulties in the way of accomplishing the consolidation of each peasant's scattered parcels of land are almost insurmountable.

The Bulgarians are an intelligent and energetic race who work hard. The men rather than the women, as is the case in some countries

^a These are probably plows with iron shares. In 1920 the number of plows of modern type was placed at 257,000. In addition there were 449,000 oxen—that is, plows of the primitive wooden type with a V-shaped piece of iron at the tip.

of eastern Europe, do the heavy field work. The size of the farm is so small that most households are organized on very frugal lines and family life is reduced to simplest proportions. Almost every farm family has a few sheep and pigs; most have a cow or two, and the more well-to-do have a horse. Practically everything that is found in the house, including clothing and furniture, is made at home or in the neighborhood.

The Bulgars, unlike the Rumanians and the Serbians, did not submit to the régime of a corn-meal⁴² diet imposed by the Turks upon most of the peoples they reduced to serfdom. Instead they retained their wheat-and-rye-eating customs, developed in south-eastern Russia before their migration from the steppes of Russia. As a result, the Bulgarian peasant produces wheat and rye for his own consumption. His basic articles of diet are wheat or rye bread and milk from cows, water buffaloes, sheep or goats that has been soured by a special process. The quantity of wheat and rye consumed as food in Bulgaria is equivalent to the total cereal diet of about 70.1 per cent of the population. The corn consumed as human food is equivalent to the total cereal diet of 27.1 per cent of the population and the remaining 2.8 per cent represents the total consumption of barley and oats as human food.⁴³ This is just the reverse of conditions in Rumania, in which country the corn consumed is equivalent to the total cereal diet of 77.9 per cent of the population, whereas the quantity of wheat and rye consumed is equivalent to the cereal diet of 22.1 per cent of the population.

In Bulgaria the peasants are in the habit of seeding a certain proportion of their land to wheat and rye for their own food supply, consequently the export of wheat and rye consists largely of the surplus which exists after the food and seed requirements have been provided. The Rumanian peasants, on the other hand, seed a certain proportion of their lands to corn for food, whereas the seeding of wheat is of secondary consideration, depending upon the need of cash for taxes and the need for obtaining the bare necessities incidental to their primitive existence.

Most Bulgarian farms are so small that they are barely self-supporting. If there are any marketable surpluses, they consist of a few eggs, a little cheese or wool, a few chickens, a pig or two, and an occasional larger animal. The larger farms market cereals in addition to animal products. The cereal surplus ranges from 1 to perhaps 10 sacks of grain. Formerly a few of the rich peasants produced considerable surpluses of wheat or corn, but since the land reform this type of farmer has disappeared and grain is now marketed only in small lots. Surplus grain is sold in a near-by market town to a small buyer who has no grain-handling equipment except a shed with a clay floor, a wooden shovel or two, a large hand sieve with which to sift out dirt, and brooms. Only wealthy merchants have so modern a machine as a hand-power fanning mill.

⁴² Corn is commonly known as Turkish grain in the Balkans except in Bulgaria, where it is called "travitz" (the trait of grain).

⁴³ The food ration of the Bulgarians varies greatly in different parts of the country. The late chief of the Bulgarian statistical service, Kiril Popoff, has made a special study of the food consumption in Bulgaria, which shows, for example, that in Samokov 90 per cent of the population eat only rye, 5 per cent eat wheat and rye, and 5 per cent eat wheat and corn. In Ksanalk the cereal consumption is 45 per cent wheat, 20 per cent corn, 25 per cent rye, and 3 per cent barley. In northwest Bulgaria, where the population is largely of Wallachian origin, in the district of Lom the cereal consumption is 70 per cent corn, 10 per cent wheat, and 20 per cent mixed corn and wheat. Doctor Popoff has in this way worked out the cereal ratio for each Province in the Kingdom.

The small buyer purchases a sack or two from this peasant and a few sacks from that peasant until he has accumulated 10 metric tons, or one carload.⁴⁴ This he hauls, in sacks, to the nearest railway station, where it is officially sampled and turned over to the Government transportation agent. The grain is sold upon the basis of this sample and is finally consigned to a port or milling center. There are no elevators either in the country or at the ports. All grain is handled in sacks and by hand.

PRE-WAR CEREAL EXPORTS

During the 25-year period before the World War there had been a tendency toward a decrease in the exportation of wheat, barley, and oats from the old Kingdom of Bulgaria and a definite increase in the corn and rye exports, as indicated in Table 59.

TABLE 59.—Cereals from Bulgaria, averages for specified periods, 1886-1910 (35, p. 177)

Cereal	Average		
	1886-1895	1896-1905	1906-1910
Bread cereals:			
Wheat.....	10,801	11,008	8,224
Rye.....	1,618	1,574	1,656
Total.....	12,419	12,582	9,880
Barley.....	1,169	2,245	1,975
Oats.....	363	1,276	1,165
Corn.....	4,233	5,681	6,019
Millet.....	22	179	182

This decrease in the exportable surplus of wheat had been accompanied, at least during the latter part of the period, by an increase in the area seeded to wheat, thus indicating a trend toward increased wheat consumption within Bulgaria itself.

Under normal conditions the export wheat originates in a well-defined region along the banks of the Danube River, on the plains and valleys near the port of Varna in north Bulgaria, as well as on the Black Sea plain near the port of Burgas in south Bulgaria. In other parts of the Kingdom the areas of surplus and of deficit are rather evenly balanced. Any surplus in one district is as a rule absorbed by a neighboring deficit district. Wheat and rye are produced, to some extent, in every part of Bulgaria, but the mountainous country in the center and southwest of the Kingdom are deficit areas. In the mountain districts the population engages chiefly in fruit growing, wine making, sheep and cattle raising, in the lumber industry, in mining, and to a very minor extent in manufacturing.

Sofia, the capital city, has a population of 154,000 and is located in a valley, which produces a surplus of agricultural products slightly above the needs of the rural population, but not enough to fully supply the city itself. The capital is provisioned by shipments of

⁴⁴ 1 carload equals 22,046 pounds.

contribute his services free to the State for a certain period. Much needed improvements in roads, bridges, and buildings have been made by this means and new construction has been undertaken.

Nevertheless, in spite of prohibitions against the importation of any articles except those of strictest utility, the balance of trade, which had been favorable to Bulgaria in 1922 and 1923, became unfavorable in both the years 1924 and 1925. This resulted in further depressing the already unfavorable situation.

AGRICULTURE THE MOST IMPORTANT INDUSTRY

There are deposits of coal and other minerals as well as extensive forests in Bulgaria, but these have not been exploited to any great extent. The industries of the country are for the most part directly dependent upon agriculture and animal industry for their raw materials. For these reasons, field-crop production and livestock production are the mainsprings of Bulgarian economic life. The physical adaptability of the country to the pursuit of agriculture is thus of first importance. (Table 62.)

TABLE 62.—Value of industrial production in Bulgaria, 1909 and 1921 (S, Ann. 17, pp. 169-171)

Industry	1909		1921	
Agricultural:	<i>Leva</i>	<i>Dollars</i> ¹	<i>Leva</i> ²	<i>Dollars</i> ¹
Flour milling, sugar, brewing, distilling, etc.	40,480,644	7,812,764	65,873,789	12,715,611
Textiles	17,445,202	3,366,933	12,663,866	2,444,120
Tanning, etc.	4,538,680	875,967	3,677,061	709,679
Total	62,464,526	12,055,666	82,214,716	15,867,446
Semiacgricultural:				
Chemicals, soap, rose oil, etc.	2,463,428	475,442	3,142,527	606,508
Nonagricultural:				
Mining	1,406,108	271,379	2,715,496	523,706
Metallurgy	2,140,624	414,298	2,744,935	532,708
Ceramics	1,792,052	345,868	3,900,830	752,860
Forestry	2,686,662	520,900	1,823,263	351,879
Paper	640,941	123,561	728,561	140,685
Electrical energy production	926,130	179,131	79,043	15,255
Total	9,432,836	1,890,538	11,990,137	2,314,066
Grand total	74,360,859	14,351,646	97,347,410	18,785,000

¹ Value of the lev at par, 19.3 cents.

² Gold leva.

MILITARY AGRONOMS

During the war the agriculture of Bulgaria was placed under the direction of so-called "military agronomes," whose duties consisted in mobilizing every resource of man and animal power and machinery, in order to maintain food production at the highest possible level. In most other countries the agriculture was demoralized by calling too large a proportion of the man power into military service. In Bulgaria men were called from the military camps to perform the necessary work of plowing, seeding, and harvesting. This sustained effort in Bulgaria, to maintain the food supply at a level of national self-sufficiency, resulted in a stabilization of agricultural production in those portions of the country not affected by territorial changes. Even when the statistics pertaining to agricultural areas and production in the newly acquired territories are included with

those of residual Bulgaria, no such radical differences between prewar and postwar condition of cereals are found as was the case in Rumania, Austria, or many other succession States.

FERTILIZERS

There is no record of the sale or use of commercial fertilizers in Bulgaria. The Bulgarians utilize the natural manure obtained from their animal industry. In 1910 the value placed upon animal manure was nearly \$5,000,000. (See Table 81 for details.)

BULGARIAN REFUGEES

During the almost continuous fighting, from the outbreak of the Balkan War in 1912 to the end of the World War in 1918, and throughout the postwar period until 1925, a total of 221,191 refugees have arrived and remained within the frontiers of Bulgaria. These refugees include Bulgarians and Armenians from Turkish territories and Russians expatriated during the Bolshevik régime. About 36 per cent of these refugees were believed, in 1925, to be entirely destitute and 20 per cent had means of subsistence for only a few months, 17 per cent had acquired a house, and 27 per cent had a house and some implements. The economic disposition of these refugees was too great a problem for the Bulgarian Government to settle with its own resources and on May 3, 1925, formal application was made to the League of Nations for assistance.

It was estimated that 50,000 leva⁴⁶ (\$366) were required to cover the provision of a house, an ox or a cow, one-half use of a plow and a cart, and one-fourth use of a harrow, minor implements, seed, and subsistence for eight or nine months. It was the plan of the Government to settle 30,180 families on the land and 5,000 families in town. The standard allowance of farm land is 5 hectares (12.3 acres) per family. However, 10 per cent of the families will be settled in the regions of intensive farming (vineyards, tobacco, orchards, silkworms, etc.) where only half that acreage will be required. The total land required has been estimated at 326,172 acres of which 88,956 acres must be deforested and 98,840 acres must be drained.

This project, when completed, will put 60,000 heads of families into productive employment.

COOPERATIVE ORGANIZATIONS

There were 310 cooperative organizations reported to have been affiliated with the Central Cooperative Bank of Bulgaria in 1925. Of this number, 11 were agricultural, 88 engaged in production, 73 handled products of consumption, 7 were for purchase and sale, 3 were unions of various cooperative organizations, 15 were not classified, and 113 were cooperative banks.

One of the best-organized group of cooperatives is the Central Union of the Cooperative Societies of Tobacco Planters, chartered in 1925. There are 29 cooperative societies comprising the union with a total membership of about 24,000 and a combined capital of 3,000,000 leva⁴⁷ or \$21,951.

⁴⁶ The average value of the lev in 1925 was equivalent to 0.7317 cent.

⁴⁷ See footnote 46.

COMMUNICATIONS

The first line of railroad, about 129 miles in length, was built from Russe on the Danube to Varna on the Black Sea in 1868. The Bulgarian section of Vienna-Constantinople Railway through Sofia was built between 1873 and 1888. In 1890 the port of Burgas was connected with Sofia by way of Jambol and nine years later Varna was connected with Sofia by a railway through north Bulgaria to Shumen. In 1912, north and south Bulgaria were united by a railway from Gorna-Orjechovica to Stara Zagora. In all there were 1,730 miles of standard and narrow gauge railways in operation in Bulgaria in 1927 or 4.3 miles for each 100 square miles of area and there were 627 miles of railways under construction.

At the end of 1925 there were 4,397 miles of State roads with 538 miles under construction. There were 3,483 miles of country roads with 3,035 miles under construction. Total of wagon roads was 7,880 miles or 19.8 miles per 100 square miles of area.

The Danube River flowing along the northern frontier of Bulgaria offers cheap water transportation through nine river ports, the chief of which are Lom, Vidin, and Russe. The capacity of these ports is limited and their equipment primitive. The major part of the Bulgarian shipments of grain, via the Danube, are transferred to rail at Russe for export through the port of Varna, although some grain continues down the river to Braila, in Rumania, for reexport to western Europe.

There are eight ports on the Black Sea of which only Varna and Burgas are important. Burgas is gradually becoming the major port of Bulgaria.

RELATIVE STATUS OF FIELD CROPS AND LIVESTOCKS

The latest official census of livestock was taken in 1920. At this time the numbers of horses were 398,000 or 93.6 per cent of the pre-war estimated number. In similar comparison, cattle were 111.9 per cent, sheep 104 per cent, and swine 199.6 per cent.

On the other hand, by 1921 the acreage of wheat had regained 93.6 per cent of its 1909-1912 average, rye 84.9 per cent, barley 102.5 per cent, oats 79.4 per cent, corn 95.1 per cent, potatoes 181.8 per cent, and sugar beets 83.3 per cent.

These data indicate that during the World War and the succeeding years up to 1921, at least, there was a tendency among Bulgarian peasants to maintain livestock more nearly at the pre-war level than was the case with reference to field crops.

CEREALS

If unproductive land, forests, and fallow land be deducted from the total area of Bulgaria (present boundary), and the percentage of the productive land under each crop is determined, it will be found that in 1924 two groups of farm crops are thrown into sharp relief. Cereals occupied 55.6 per cent of the productive land in that year (Table 53), forage plants, including natural grasses 36.7 per cent, and all other crops occupied 7.7 per cent.

Similarly, the pre-war situation in the old Kingdom of Bulgaria was: Cereals 59.7 per cent, grass and forage 34.6 per cent, and other crops 5.7 per cent.

Changes in territory and in the economic situation resulted in a somewhat smaller percentage of the land under cereals, and more land under grass and other crops, in the present Kingdom of Bulgaria, in 1924, than in the old Kingdom before the Balkan War (1912).

Considering the five chief cereals alone, there were, before the Balkan War, an average of 5,886,000 acres under wheat, rye, barley, oats, and corn, in the old Kingdom, as contrasted with 5,357,000 acres in the territories now comprising the present Kingdom of Bulgaria. In 1921 the cereal acreage had decreased to 4,975,000 acres; but there has been a steady, yearly increase until, by 1926, not only had the area under the five chief cereals recovered its former acreage but was 25,000 acres above the estimated pre-war average. (Table 63.)

TABLE 63.—Cereals, potatoes and sugar beets: Area seeded in Bulgaria, present boundaries, average 1909-1912, 1921-1925, and annual, 1921-1926

Year	Five chief cereals							Potatoes	Sugar beets
	Bread cereals			Barley	Oats	Corn	Total		
	Wheat	Rye	Total						
Average:	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres
1909-1912.....	2,845	640	2,394	511	417	1,406	5,357	11	138
1921-1925.....	2,353	440	2,798	535	357	1,427	5,117	23	34
1921.....	2,223	466	2,699	524	331	1,421	4,975	20	30
1922.....	2,226	442	2,668	534	352	1,313	4,867	20	25
1923.....	2,303	425	2,728	544	370	1,364	5,006	24	50
1924.....	2,492	413	2,905	529	376	1,505	5,315	24	50
1925.....	2,537	453	2,990	544	354	1,531	5,419	27	64
1926.....	2,587	460	3,047	546	319	1,470	5,382	24	49
Percentage of total chief cereals:									
Average:	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
1909-1912.....	44.5	10.3	54.8	9.5	7.8	27.9	100.0	.....	.....
1921-1925.....	46.1	8.6	54.7	10.4	7.0	27.9	100.0	.....	.....
1921.....	44.9	9.4	54.3	10.5	6.6	28.6	100.0	.....	.....
1922.....	45.7	9.1	54.8	11.0	7.5	27.0	100.0	.....	.....
1923.....	46.0	8.5	54.5	10.9	7.4	27.2	100.0	.....	.....
1924.....	46.9	7.8	54.7	9.9	7.1	28.3	100.0	.....	.....
1925.....	46.8	8.4	55.2	10.0	6.5	28.3	100.0	.....	.....
1926.....	48.1	8.5	56.6	10.2	5.9	27.3	100.0	.....	.....

For sources see tables on separate commodities in following text.

¹ For 1914 only. Other years not significant.

A comparison of the average acreages estimated to have been seeded in 1909-1912 with those for the 5-year period ended 1925, shows that little change has occurred in the rate at which cereals are seeded in Bulgaria except for the shift from rye to wheat. The rate of planting corn has remained unchanged, and the differences in barley and oats are no more than those to be expected from seasonal fluctuations.

In Rumania, the 1921-1925 average shows a decrease in the production of bread cereals, wheat and rye, whereas, in Bulgaria, there has been no such change, when the areas of the two cereals are considered together.

Production of cereals in Bulgaria has fluctuated somewhat from year to year, responding to changes of acreage and the fluctuations of the climate. Comparing the 1921-1925 averages with those of

1909-1912, it is noted that the acreages of wheat, rye, oats, and corn during the latter period were somewhat below those during the former, whereas barley was somewhat higher.

As indicated in Table 64, the reduction in the average production of wheat, rye, oats, and corn, shown by a comparison of these two periods, was about proportional to the differences in acreage.

During the seasons 1923, 1924, and 1925 production of the seven most important field crops in the territories comprising the present Kingdom of Bulgaria was greater than in these same territories before the World War.

TABLE 64.—Cereals, potatoes and sugar beets: Production in Bulgaria, present boundaries, average 1909-1912, 1921-1925, and annual, 1921-1926

[On thousands—i. e., 000 omitted]

Year	Five chief cereals							Potatoes	Sugar beets
	Bread cereals			Barley	Oats	Corn	Total		
	Wheat	Rye	Total						
Average:	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Short tons
1909-1912.....	35,301	8,318	44,620	10,090	8,679	25,487	88,561	654	1,210
1921-1925.....	35,301	6,720	42,021	10,642	8,318	22,328	83,509	1,571	222
1921.....	29,239	6,095	35,334	8,480	6,657	16,380	66,860	1,040	129
1922.....	37,704	7,453	45,157	11,941	9,144	15,479	81,721	1,300	166
1923.....	36,223	6,802	43,025	11,061	9,188	26,866	67,202	1,221	302
1924.....	24,698	4,303	29,001	7,067	6,371	24,756	67,195	1,819	446
1925.....	49,643	8,889	58,532	14,632	10,228	28,158	111,570	2,418	18
1926.....	41,664	8,008	49,672	11,969	7,413	29,018	87,472	1,811	331

For sources see tables on separate commodities in following text.

¹ For 1914 only. Other years not significant.

The yields of cereals per acre in Bulgaria during 1921-1925 as indicated in Table 65, averaged nearly the same as during 1909-1912, varying no more than 0.2 bushel, except in the case of oats which ranged 2.5 bushels above normal and of corn which dropped to 1.4 bushels below normal. Contrast this with the conditions in Rumania. When the 1921-1925 average yields per acre are compared with those of 1909-1913 they show a decrease of 4.2 bushels per acre in the case of bread cereals, 5.8 bushels for barley, 8.8 bushels for oats, and 3.9 bushels per acre for corn. Although seasonal climatic conditions had an influence, the falling off in yield in Rumania was largely a consequence of the changes from large-estate to peasant farming, following the land reform.

There had been a land reform, also, in Bulgaria, but the effects of this reform are not markedly noticeable either as to the manner in which field crops have been seeded or as to yield.

The territories comprised within the present confines of Bulgaria produced more cereals in each of the years 1923, 1925, and 1926 than these same areas produced, on the average, before the World War. However, when total production is divided by the total population for the pre-war and post-war periods, it is found that only, in 1925, did the per capita production exceed the average production per inhabitant during 1909-1912.

TABLE 65.—Cereals, potatoes and sugar beets: Yields per acre in Bulgaria, present boundaries, average 1909-1912, 1921-1925, and annual, 1921-1926

Year	Five chief cereals							Potatoes	Sugar beets
	Bread cereals			Barley	Oats	Corn	Total		
	Wheat	Rye	Total						
Average:	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Short tons
1909-1912.....	15.2	15.2	15.2	19.7	30.8	17.0	16.6	59.5	15.8
1921-1925.....	15.1	15.3	15.1	19.9	23.3	15.6	16.3	68.3	6.5
1921.....	13.1	13.1	13.1	16.2	20.1	11.5	13.4	52.0	4.3
1922.....	15.9	16.9	16.9	22.4	26.0	11.8	16.8	68.0	6.9
1923.....	15.7	16.1	15.8	20.3	24.8	10.7	15.0	60.8	7.0
1924.....	9.9	10.4	10.0	13.4	16.9	10.4	12.6	75.8	7.0
1925.....	19.6	19.6	19.6	28.9	28.9	18.4	20.6	83.6	6.0
1926.....	15.9	17.4	16.1	21.9	23.2	19.7	18.1	75.5	6.8

For acreage, total production, and sources see table on separate commodities in following text.

¹ 1914 only.

During the 5-year period ended 1912, Bulgaria (present boundaries) produced 2,038 bushels of cereals for each 100 inhabitants. During 1925, production reached 2,185.2 bushels, an increase of 1.47 bushels per capita. (Table 66.) In 1926, total production had fallen off to 1,891.5 bushels per 100 inhabitants and during the 5-year period ended 1925 annual production has averaged only 1,666.6 bushels per 100 inhabitants, a drop of 371.4 bushels below the pre-war average. Comparing conditions within present boundaries with those of the old Kingdom, the production per 100 inhabitants during 1921-1925 averaged 616.6 bushels below the pre-war average.

TABLE 66.—Cereals, potatoes and sugar beets: Acreage and production per 100 inhabitants in Bulgaria, present boundaries, average 1909-1912, 1921-1925, and annual, 1921-1926

Year	Five chief cereals							Potatoes	Sugar beets
	Bread cereals			Barley	Oats	Corn	Total		
	Wheat	Rye	Total						
Average:	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Average— 1909-1912 1921-1925.....	67.3 47.0	12.6 8.8	67.3 55.8	11.7 10.7	9.6 7.1	34.3 28.5	122.9 102.1	3.4 .5	1.8 .7
1921.....	54.4	9.5	54.9	10.7	6.7	28.9	101.2	.4	.6
1922.....	44.9	8.9	53.8	10.8	7.1	27.4	98.1	.4	.5
1923.....	45.9	8.5	54.4	10.9	7.4	27.2	99.9	.5	1.0
1924.....	49.3	8.2	57.5	10.4	7.4	29.8	105.1	.5	1.3
1925.....	49.7	8.9	58.6	10.6	6.9	30.0	105.1	.5	.1
1926.....	53.2	8.9	62.1	10.6	6.2	28.5	104.4	.5	1.0
Production:	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Short tons
Average— 1909-1912 1921-1925.....	822.7 708.5	190.9 134.1	1,013.6 842.6	230.9 212.4	190.1 166.0	344.5 445.6	2,038.0 1,666.6	15.0 31.4	14.8 4.4
1921.....	594.7	124.0	718.7	172.7	135.4	333.2	1,360.0	21.2	2.6
1922.....	759.7	150.2	909.9	240.6	184.2	311.9	1,646.6	27.4	3.3
1923.....	723.0	137.0	860.0	223.8	183.4	286.2	1,860.4	34.4	7.0
1924.....	488.3	85.1	573.4	139.7	126.0	489.4	1,328.5	36.0	8.8
1925.....	972.3	174.1	1,146.4	287.0	200.3	551.5	2,185.2	47.4	.4
1926.....	796.9	156.4	953.3	232.3	143.8	563.1	1,891.5	53.1	6.4

For population see Table 67.

¹ 1914 only.

This is the crux of the present export situation in Bulgaria. The territories ceded to Rumania produced large surpluses of grain in proximity to the exporting port of Varna. These surpluses have been lost to Bulgaria's export trade. On the other hand, the territories acquired from Turkey are cereal deficit regions and require shipments of grain from North and South Bulgaria which cuts down still further the export potentialities of the surplus districts.

There have been steady increases in native population amounting, by 1926, to about 800,000 which includes 221,000 refugees.

Furthermore, an analysis of the statistics indicates an increased per capita disappearance of wheat, rye, and oats.

The land reform in itself has probably been without appreciable effect upon the agricultural production in Bulgaria, but the combined influences of the other factors, summarized above, have resulted in a reduction of the post-war exports from Bulgaria (present boundaries). These exports have ranged far below the normal pre-war exports of the old Kingdom, averaging, during the 5-year period ended 1925, about 2,496,000 bushels of wheat, as compared with the average of 11,149,000 bushels from the old Kingdom during 1909-1912. The other cereals in similar comparison are: Rye, 199,000 bushels against 2,033,000 bushels; barley, 773,000 bushels against 2,091,000 bushels; oats, 105,000 bushels against 377,000 bushels; and corn 4,298,000 bushels against 8,728,000 bushels.

WHEAT

In proportion to the quantity produced, the old Kingdom of Bulgaria was a considerable exporter of wheat. The average net exportation was 11,149,000 bushels, equivalent to 33.6 per cent of the total net production. In 1913, Bulgaria ceded to Rumania and Yugoslavia certain territories that on an average produced a surplus of 3,276,000 bushels, equivalent to about 29.4 per cent of the total average pre-war wheat exportation from the old Kingdom.

The newly acquired territories to the south do not produce enough wheat to satisfy the bread requirements of the local population, resulting in a wheat deficit. This deficit has been estimated to have averaged 1,477,000 bushels annually during the 4-year period ended 1912.

Taking into consideration the loss of territories on the northeast and northwest, whose annual surplus was practically 3,276,000 bushels, and the acquisition of territories on the south, whose annual deficit was practically 1,477,000 bushels, the pre-war surplus production of Bulgaria, (present boundary) may be considered to have been approximately 6,396,000 bushels, equivalent to 22.3 per cent of the estimated net production. When this estimated surplus is compared with the average pre-war actual export from the old Kingdom of 11,149,000 bushels it is easy to understand the catastrophic effect that the changes in boundaries has had upon the export trade of Bulgaria and upon the international financial standing of the new Kingdom.

Comparing the pre-war estimates of acreage for the territories comprising the present Bulgarian State with the post-war reported data as indicated in Table 67, it appears that there was not a pronounced falling off during the World War in the area under wheat. The wheat area in 1921 was 2,233,000 acres, or 93.6 per cent of the 1909-1912 average.

TABLE 67.—Wheat: Statistical balances of Bulgaria, average 1909-1912, 1921-1925, and annual, 1921-22 to 1926-27

District and year	Population ¹	Acreage	Seed	Production		Disappearance		Surplus (+) or deficit (-)
				Gross	Net	Statistical	Per capita	
Pre-war average, 1909-1912:								
Old Kingdom minus ceded territories.....	Number 3,984,330	1,000 acres 2,351	1,000 bushels 17,427	1,000 bushels 33,691	1,000 bushels 28,264	1,000 bushels 20,301	5.12	+7,373
Newly acquired territory.....	725,334	54	172	617	445	1,922	5.12	-1,477
Present territory.....	4,709,164	2,385	7,599	36,398	28,709	22,313	5.12	-4,696
Post-war period: ²								
1921-22.....	4,916,300	2,233	7,114	29,239	22,125	17,649	3.59	+4,476
1922-23.....	4,963,000	2,226	7,092	37,704	30,612	26,922	5.42	+3,690
1923-24.....	5,010,200	2,203	7,337	36,223	28,866	24,462	5.26	+1,421
1924-25.....	5,057,800	2,492	7,940	24,698	16,758	18,433	3.65	-1,665
1925-26.....	5,105,800	2,537	8,083	49,643	41,560	37,266	7.30	+4,294
Average, 1921-1925.....	5,010,620	2,338	7,513	35,501	27,988	25,350	5.06	+4,638
1926-27.....	5,153,205	2,557	8,242	41,064	32,822	.....	.....	.....

¹ Population for pre-war is 1910; old Kingdom of Bulgaria, 4,337,513 (8, Ann. 4); ceded territories, 352,083, calculated from (8, Ann. 4); newly acquired territory estimated, assuming that the same increase had occurred between 1910 and 1920 as in the old Kingdom, minus ceded territories. 1921 to 1925 (8, Ann. 17, p. 18), 1926 estimated by adding to 1925 the average yearly increase between 1921 and 1925.

² Acreage, production and seed for old Kingdom (9, 1909-1912); ceded territories calculated from (9, 1909-1912).

³ 2,728,000 acres minus 397,000 acres ceded to Rumania and Yugoslavia. See Tables 21 and 96.

⁴ Total seed for Bulgaria, minus seed used in ceded territories. See Tables 21 and 96.

⁵ 41,842,000 bushels, minus 6,131,000 bushels produced in ceded territories. See Tables 21 and 96.

⁶ 11,149,000 bushels, net export of the old Kingdom for calendar years from 17, 1909-1910, minus 3,276,000 bushels, statistical surplus produced in ceded territories.

⁷ Area and production of newly acquired territory, estimated.

⁸ 1,187 bushels seed per acre, same as old Kingdom of Bulgaria.

⁹ Estimated to be the same as old Kingdom, minus ceded territories.

¹⁰ Acreage and production for 1921 to 1926 from official records of U. S. Department of Agriculture, Bureau of Agricultural Economics.

¹¹ 3,185 bushels seed per acre used, 1921 to 1926, as indicated in pre-war average.

¹² Net exports (+) and net imports (-) for years beginning Aug. 1 (7, 1924-1927).

The acreage under wheat has steadily increased since 1922, reaching a maximum of 2,587,000 acres in 1926 or 108.5 per cent of the estimated pre-war average for these territories, but this gain in acreage is more than offset by the natural growth of the population.

The estimated population for 1926 is 118.2 per cent of what it was in 1910, so that the wheat acreage, of recent years, averages less per capita than before the World War. Total domestic disappearance of wheat has increased under these conditions. There is even an indication of increased consumption per capita, although this is obscured by the poor crop year of 1924, during which time the nation went on short rations and international trade resulted in a net importation of 1,695,000 bushels of wheat.

Exports of wheat from present Bulgarian territory in surplus-producing years, since 1921, have been disappointing when contrasted with the pre-war exportations of the old Kingdom or even when compared with the estimated pre-war exportable surplus of the new Kingdom.

Although preliminary estimates place the 1927 acreage at 2,508,000 acres, somewhat below that of the previous year, it is probable that wheat acreage in Bulgaria will increase and may even equal that of the old Kingdom before the World War. The most fertile fields in present Bulgaria are already under wheat, so that production from any additional areas, which must necessarily be more or less marginal

in character, can not equal that of an equivalent area of the unusually rich soils found in the wheat belt of the Dobruja that have passed under Rumanian control. Population has increased and will continue to increase. It is probable that domestic consumption of wheat per capita is increasing.

Taking all these factors into consideration, it is improbable that the future exportable surplus of Bulgaria will exceed the pre-war average of 11,000,000 bushels from the old Kingdom although in good years it may exceed the estimated surplus of 6,396,000 produced before the war in the territories now comprising the new Kingdom.

FLOUR MILLING

The total pre-war export of wheat from the old Kingdom of Bulgaria averaged 11,149,000 bushels, of which 8,698,000 were exported as grain and the equivalent of 2,451,000 bushels as flour. In addition to the wheat ground in the commercial mills for export, an annual average of 22,000,000 bushels were ground for domestic consumption.

In 1910, there were 12,004 mills in Bulgaria. Of this number, 99 were engaged, under the patronage of the State, in the production of high-grade export flour as well as the lower grades demanded for peasant consumption. These great mills were located at Tirnovo, Gorna Orjechovica, Plevna, Stara Zagora, Sofia, Russe, and Shumen. The great majority of all other mills was of the wind or water type, grinding coarse flour and meal.

There were 121 commercial flour mills, including a few mills equipped for processing rice, in operation in 1921. These mills are reported to have manufactured products to the value of 43,989,824 gold leva⁴⁸ or \$8,490,036 as compared with products valued at \$2,444,126 manufactured by the textile industry; \$1,906,358 worth of sugar produced by the sugar industry and the return of \$5,947,530 by all other industries.

TABLE 68.—Wheat and wheat flour: Quantity and destinations of exports from Bulgaria, 1922-1925 (8, Ann. 17, pp. 271, 273)

Country to which exported	1922		1923		1924		1925	
	Wheat	Wheat flour	Wheat	Wheat flour	Wheat	Wheat flour	Wheat	Wheat flour
Austria.....	Short tons 6,293	Short tons 449	Short tons 8,997	Short tons 1,009	Short tons 2,815	Short tons 44	Short tons 1,979	Short tons 552
Czechoslovakia.....	532	16	22	(7)	181	(7)	27	(7)
Egypt.....	380	(7)	380	(7)	27	(7)	13	552
France.....	1,610	(7)	3,540	(7)	367	(7)	17	401
Germany.....	18,828	3,913	10,515	4,850	2,192	9,979	24,532	16,042
Greece.....	4,240	(7)	3,717	(7)	17	(7)	75	(7)
Hungary.....	7,063	(7)	1,130	941	(7)	401	(7)	(7)
Italy.....	11,592	837	486	(7)	455	4,861	82	2
Russia.....	32,087	14,890	47,219	4,181	10,709	15	(7)	(7)
Turkey.....	2,110	1,071	177	629	9	(7)	(7)	(7)
Yugoslavia.....	11,253	(7)	12,134	20	33	9,152	1,934	(7)
Other countries and undetermined destination.....	11,253	(7)	12,134	20	33	9,152	1,934	(7)
Total.....	115,628	21,576	87,916	12,250	13,294	13,124	38,692	20,666

¹ Less than 500 pounds.

² If any, included in other countries.

⁴⁸ Value of the leva at par, 19.3 cents.

Compared with other manufactures, flour milling was the most important industry in Bulgaria. Previous to 1879 the Turkish Empire drew upon Bulgaria for a considerable portion of its food supplies, but for some years after the war of freedom this source of wheat was neglected until 1899. At this time trade relationships were reestablished and, during 1909-1912, about 80 per cent of the flour exported from Bulgaria went to Turkey.

The export of flour has ranged between 12,250 and 21,576 short tons annually, during the 4-year period ended 1925. In 1925 the bulk of the flour exported went to Greece and Egypt. (Table 68.)

By far the greater portion of wheat exported in the form of grain in recent years went to Greece and Turkey. Bulgaria shipped little wheat to western Europe in 1924 and 1925.

RYE

More rye was planted in the territories acquired from Turkey than was sown in the territories transferred to Rumania and Yugoslavia. Thus the territories now comprised within the frontiers of Bulgaria planted annually before the World War 549,000 acres to rye or somewhat more than was planted in the old Kingdom. But the newly acquired territories did not produce sufficient rye to meet their own food requirements, and yields per acre were lower than those obtained in the territories transferred to Bulgaria's neighbors on the north and west. For these reasons, instead of an annual export of 2,033,000 bushels which the old Kingdom sent abroad each year, it is estimated that the annual rye surplus of the territories constituting present Bulgaria was approximately 1,883,000 bushels. (Table 69.)

TABLE 69.—Rye: Statistical balance of Bulgaria, average 1909-1912, 1921-1925, and annual, 1921-22 to 1926-27

District and year	Acreage	Seed	Production		Disappearance		Surplus (+) or deficit (-)
			Gross	Net	Statistical	Per capita	
Pre-war average, 1909-1912:	1,000 acres	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels
Old Kingdom minus ceded territory ¹	1,508	41,532	7,806	6,274	4,354	1.06	+1,920
Newly acquired territory ²	46	1,140	312	372	499	1.10	-37
Present territory.....	549	1,672	8,318	6,646	4,763	1.00	+1,883
Post-war period: 19.....							
1921-22.....	466	11,419	6,905	4,676	4,413	0.90	+293
1922-23.....	442	1,346	7,453	6,107	5,577	1.12	+530
1923-24.....	428	1,258	6,862	5,567	5,458	1.00	+404
1924-25.....	415	1,258	6,862	5,567	5,458	1.00	+404
1925-26.....	453	1,380	8,889	7,509	7,421	1.45	+468
Average 1921-1925.....	440	1,340	6,720	5,380	5,175	1.03	+205
1926-27.....	460	1,401	8,008	6,607	6,607	1.00	0

¹ For populations see Table 67.

² See note 2 in Table 67.

³ 335,000 acres less 30,000 ceded to Rumania and Yugoslavia. See Tables 23 and 100.

⁴ Total seed for Bulgaria minus seed used in ceded territories. See Tables 23 and 100.

⁵ 341,000 bushels less 585,000 bushels produced in the ceded territories. See Tables 23 and 100.

⁶ 2,033,000 bushels, net export of rye and rye flour of the old Kingdom for calendar years (7, 1924-25), minus 113,000 bushels, statistical surplus produced in ceded territories. See Tables 23 and 100.

⁷ Acreage and production of newly acquired territory, estimated.

⁸ 3,042 bushels seed per acre, same as the old Kingdom of Bulgaria.

⁹ Same rate as the old Kingdom less ceded territory.

¹⁰ Acreage and production for 1921 to 1925 from official records of the U. S. Department of Agriculture, Bureau of Agricultural Economics.

¹¹ 3,046 bushels seed per acre for 1921 to 1925 as indicated in pre-war average.

¹² Net exports for years beginning Aug. 1 (7, 1924-27).

The acreage of rye in 1921 was 84.9 per cent of the pre-war estimated average. This is a significant decrease in view of the fact that in this year the Bulgarians seeded more than 93 per cent of their former wheat acreage. During the next three years, rye acreage decreased to 413,000 acres, and then increased somewhat. By 1926, the area under rye was 460,000 acres or 83.8 per cent of the pre-war average. Preliminary estimates indicate the 1927 area at 442,000 acres.

Production has been proportionately low until the good harvests of 1925 and 1926 brought net production somewhat above the pre-war average in the former year and about equal to the 1909-1912 average in the latter. Except during the poor crop year, 1924-25, disappearance has been about normal, and consequently exportation has been low. Most of the surplus rye produced in Bulgaria is exported to Greece and Turkey. It is probable that rye will not recover its pre-war status since in Bulgaria, as in other countries in southeastern Europe, there seems to be a trend toward increased consumption of wheat. Wheat acreage is being given the preference on those lands set aside for the cultivation of bread cereals.

BARLEY

The net exportation of barley from the old Kingdom of Bulgaria averaged 2,091,000 bushels, of which 1,277,000 bushels were produced in the territories ceded to Rumania and Yugoslavia. The estimates for the territories acquired from Turkey indicate a statistical deficit of 496,000 bushels annually. If this deficit had been covered, the pre-war exportable surplus of Bulgaria (present boundaries) would have been approximately only 318,000 bushels. (Table 70.)

TABLE 70.—Barley: Statistical balance of Bulgaria, average 1909-1912, 1921-1925, and annual, 1921-22 to 1926-27

District and year	Acreage	Seed	Production		Disappearance		Surplus (+) or deficit (-)
			Gross	Net	Statistical	Per capita ¹	
Pre-war average, 1907-1912	1,000	1,000	1,000	1,000	1,000	1,000	
Old Kingdom minus ceded territory ²	460	1,330	1,330	8,267	7,483	1.87	+1,844
Newly acquired territory	21	66	272	206	702	1.87	-496
Present territory	511	1,596	10,069	8,473	8,185	1.87	-318
Post-war period: ³							
1921-22	524	1,636	8,480	6,853	6,034	1.23	+1,819
1922-23	534	1,668	11,941	10,273	9,005	1.81	+1,273
1923-24	544	1,699	11,063	9,364	8,880	1.77	+1,484
1924-25	529	1,652	7,067	5,415	4,883	.97	+1,532
1925-26	544	1,699	14,652	12,953	11,830	2.32	+1,123
Average 1921-1925	535	1,671	10,042	8,971	8,130	1.62	+841
1926-27	540	1,705	11,069	10,264	.....	.....	.....

¹ For populations see Table 67.

² See note 2, Table 67.

³ 620,000 acres minus seed used in ceded territories see Tables 25 and 101.

⁴ Total seed for old Bulgaria minus seed used in ceded territories. See Tables 25 and 101.

⁵ 12,650,000 bushels minus 2,650,000 bushels produced in ceded territories. See Tables 25 and 101.

⁶ 2,091,000 bushels, net export for calendar years for the old Kingdom (17, 1924-25) minus 1,277,000 bushels, statistical surplus produced in ceded territories. See Tables 25 and 101.

⁷ Acreage and production of newly acquired territories, estimated.

⁸ 3,122 bushels seed per acre, same as the old Kingdom of Bulgaria.

⁹ Same as the old Kingdom less ceded territory.

¹⁰ Acreage and production for 1921 to 1926 from official records of U. S. Department of Agriculture, Bureau of Agricultural Economics.

¹¹ 3,122 bushels seed per acre used 1921 to 1926 as indicated in pre-war average.

¹² Net exports for years beginning Aug. 1 (17, 1924-1927).

In 1921 there were 15 breweries operating in Bulgaria which produced beer and other products to the value of 6,230,247 gold leva, or about \$1,202,438.⁴⁹ This is between 6 and 7 per cent of the total value of the industrial output of the entire Kingdom during that year. Little beer is exported from Bulgaria, and the local demand for brewing barley is gaged largely by the domestic consumption of beer, which is fairly constant from year to year.

Since the World War both acreage and production of barley in Bulgaria have averaged well above the estimated pre-war normal for present boundaries. Disappearance, on the other hand, has averaged somewhat lower than the pre-war estimates and thus the actual net exports have ranged considerably higher than the surplus estimated to be available for export from these territories during the 4-year period 1909-1912. It is probable that the average export of 841,000 bushels during the 5-year period ended 1925-26 indicates with fair accuracy the new level (somewhat higher than pre-war) about which Bulgarian barley exports will fluctuate in the future.

As shown in Table 71, most of the barley exported from Bulgaria in 1924 and 1925 went to Belgium, Germany, Greece, and England.

TABLE 71.—Barley: Exports from Bulgaria by countries, 1922-1925 (8, Ann. 17, p. 271)

Country to which exported	1922	1923	1924	1925
Austria	Bushels 40,856	Bushels 17,755	Bushels	Bushels
Belgium	215,875	61,303	269,806	474,446
England	9,108	.....	2,709	32,700
France	86,103	41,434	.....	.....
Germany	48,778	.....	11,682	172,157
Greece	121,067	108,028	86,081	58,097
Italy	43,338	1,411	.....	.....
Turkey	225,031	19,225	.....	.....
Yugoslavia	94,290	7,958	.....	.....
Other countries and designation not determined	445,910	391,774	202,030	200,596
Total	1,330,376	648,788	572,723	933,096

OATS

Oats constitute the least important of the cereal crops in Bulgaria. The old Kingdom produced a small exportable surplus before the World War, averaging 377,000 bushels annually. The territories ceded to Rumania and Yugoslavia (according to statistical calculation) did not produce enough oats annually to meet local requirements which necessitated the purchase of 267,000 bushels each year to supplement home production. The newly acquired territories were also deficit regions, requiring 322,000 bushels of oats annually in addition to local production.

The pre-war surplus production of oats in Bulgaria (present boundaries) may thus be considered to have been about 55,000 bushels less than the pre-war average export from the old Kingdom, or 322,000 bushels annually. (Table 72.)

⁴⁹ The par value of the lev is 19.3 cents.

TABLE 72.—Oats: Statistical balance of Bulgaria, average 1909–1912, 1921–1925, and annual, 1921–22 to 1926–27

District and year	Acreage	Seed	Production		Disappearance		Surplus (+) or deficit (–)
			Gross	Net	Net	Per horse ¹	
Pre-war average, 1909–1912	1,000 acres	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	Bushels	1,000 bushels
Old Kingdom minus ceded territory ² ...	1,408	1,652	8,574	6,892	6,248	15.62	+4,444
Newly acquired territory ³	9	1.37	105	68	390	15.62	–322
Present territory.....	417	1,719	8,679	6,960	6,638	15.62	+322
Post-war period: ¹⁰							
1921–22.....	331	1,364	6,637	5,293	5,274	.....	11 +19
1922–23.....	352	1,451	9,144	7,083	7,299	.....	11 +487
1923–24.....	370	1,525	9,183	7,663	7,659	.....	11 +4
1924–25.....	376	1,580	9,371	8,521	8,511	.....	11 +10
1925–26.....	354	1,460	10,225	8,789	8,785	.....	11 +3
Average 1921–1925.....	357	1,470	8,318	6,848	6,743	.....	+105
1926–27.....	319	1,315	7,413	6,008	.....	.....	.....

¹ For number of horses see Table 83. Not available for post-war.² See note 2, Table 67.³ 464,000 acres less 56,000 that were ceded to Rumania and Yugoslavia. See Tables 27 and 102.⁴ Total seed for Bulgaria minus seed used in ceded territories. See Tables 27 and 102.⁵ 9,818,000 bushels less 1,244,000 bushels that were produced on ceded territories. See Tables 27 and 102.⁶ Net exports for calendar years for the old Kingdom of Bulgaria, 377,000 bushels (17, 1924–46) plus 207,000 bushels, statistical deficit of ceded territories. See Table 27 and 102.⁷ Acreage and production of newly acquired territory, estimated.⁸ 4.122 bushels per acre, same as the old Kingdom of Bulgaria.⁹ Same as in the old Kingdom less ceded territories.¹⁰ Acreage and production for 1921 to 1926 from official records of U. S. Department of Agriculture, Bureau of Agricultural Economics.¹¹ 4.122 bushels seed used per acre, 1921 to 1926, as indicated in pre-war average.¹² Net exports for years beginning August 1 (17, 1924–1927).

Since the World War the area and production of oats have ranged below the 1909–1912 average estimated for the territories comprised within the present boundaries of Bulgaria. On the other hand, disappearance has ranged somewhat above the estimated pre-war average. As a consequence the export of oats has dwindled to insignificance.

It is not clear what the future trend of the production of oats will be, but since total acreage is so small any changes that may come about will not be of great importance to the market of western Europe.

CORN

Corn is the second most important cereal crop produced in Bulgaria, ranking next to wheat. The net export of the old Kingdom averaged 8,728,000 bushels during the 4-year period ended 1912. Of this surplus, about 1,024,000 bushels are estimated to have been produced in the territories ceded to Rumania and Yugoslavia, whereas the territories acquired from Turkey show an indicated statistical deficit of 492,000 bushels. From these data it is estimated that the pre-war exportable surplus produced within the present frontiers of Bulgaria averaged approximately 7,507,000 bushels. (Table 73.)

TABLE 73.—Corn: Statistical balance of Bulgaria, average 1909–1912, 1921–1925, and annual, 1921–22 to 1926–27

District and year	Acreage	Seed	Production		Statistical	Per capita ¹	Surplus (+) or deficit (–)
			Gross	Net			
Pre-war average, 1909–1912	1,000 acres	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	Bushels	1,000 bushels
Old Kingdom minus ceded territory ² ...	1,429	1,611	24,457	23,846	15,947	3.98	+7,909
Newly acquired territory ³	66	1.28	1,630	1,002	1,494	3.98	–492
Present territory.....	1,495	1,639	25,487	24,848	17,341	3.98	+7,507
Post-war period: ¹⁰							
1921–22.....	1,421	1,607	16,380	15,773	13,558	2.76	11 +2,215
1922–23.....	1,313	1,561	15,479	14,918	10,735	2.16	11 +4,183
1923–24.....	1,364	1,582	28,569	26,284	17,973	3.59	11 +8,311
1924–25.....	1,505	1,643	24,776	24,113	19,530	3.86	11 +4,583
1925–26.....	1,531	1,654	28,158	27,504	23,623	4.63	11 +5,881
Average, 1921–1925.....	1,427	1,609	22,328	21,719	17,064	3.41	+4,635
1926–27.....	1,470	1,628	29,018	28,390	.....	.....	.....

¹ See Table 67 for populations.² See note 2 in Table 67.³ 1,541,000 acres less 112,000 acres ceded to Rumania and Yugoslavia. See Tables 29 and 103.⁴ Total seed for Bulgaria minus seed used in ceded territories. See Tables 29 and 103.⁵ 26,974,000 bushels less 2,317,000 bushels produced on ceded territories. See Tables 29 and 103.⁶ 8,728,000 bushels, net exports for old Kingdom of Bulgaria for calendar years (17, 1909–1921), minus 1,024,000 bushels, statistical surplus produced in ceded territories. See Tables 29 and 103.⁷ Acreage and production of newly acquired territory, estimated.⁸ 0.428 bushel seed per acre, same as the old Kingdom.⁹ Same as the old Kingdom less ceded territory.¹⁰ Acreage and production for 1921 to 1926 from official records of U. S. Department of Agriculture, Bureau of Agricultural Economics.¹¹ 4.67 bushel seed per acre used 1921 to 1926, as indicated in pre-war average.¹² Net exports for calendar years following the crop years (17, 1926–1927).

Corn acreage, since the World War, has averaged somewhat lower than pre-war estimated area until 1924. Production since 1923 has been above the pre-war average except for a slight falling off in 1924. Total disappearance, during the 5-year period ended 1925, has averaged slightly lower than that estimated for 1909–1912. Exports have averaged 4,635,000 bushels as compared with 7,507,000 bushels, the estimated pre-war surplus. It is probable that corn production and exportation will fluctuate in about the same manner as before the war although increased population may tend to increase the domestic disappearance somewhat above the pre-war normal.

Most of the corn exported from Bulgaria, in recent years, has been shipped to western Europe, France being the heaviest importer in 1924 and Holland in 1925. This is in contrast with the exportation of wheat and rye which were for the most part shipped to Greece, Turkey, and the Orient. (Table 74.)

TABLE 74.—Corn: Exports from Bulgaria, by countries, 1922-1925 (8, Ann. 17, p. 272)

Country to which exported	1922	1923	1924	1925
	Short tons	Short tons	Short tons	Short tons
Austria.....	11,788	6,242	19,859	17,218
Belgium.....	1,605	6,421	17,842	17,218
Czechoslovakia.....	915	.....	1,045	.....
Denmark.....	.....	1,047	3,520	786
England.....	1,794	30,540	73,637	20,714
France.....	2,743	933	15,316	10,951
Greece.....	5,358	7,281	18,425	5,112
Holland.....	.....	719	8,172	31,470
Hungary.....	8,392	4,073	7,993	.....
Italy.....	659	10,949	3,440	1,451
Rumania.....	869	2,069	(1)	.....
Russia.....	4,313	(1)	2,352	554
Turkey.....	14,436	4,918	.....	.....
Yugoslavia.....	3,065	357	187	.....
Other countries and undetermined destination.....	3,102	44,544	59,852	36,720
Total.....	62,027	117,124	232,719	128,357

¹ Less than 1,000 pounds.

POTATOES

The production of potatoes was relatively unimportant before the World War and the use of potatoes as a substitute for bread had developed slowly in Bulgaria as in most of southeastern Europe. Before the Balkan war, the net production of potatoes in Bulgaria reached only 304,000 bushels. (Table 75.) A statistical surplus was, however, available for export approximating 81,000 bushels annually during the 4-year period ended 1912.

TABLE 75.—Potatoes: Statistical balance of Bulgaria, average 1909-1912, 1921-1925, and annual, 1921-1926

District and year	Acreage	Seed	Production		Disappearance		Surplus (+) or deficit (-)
			Gross	Net ¹	Statistical	Per capita ²	
Pre-war average, 1909-1912:	1,000 acres	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels
Old Kingdom minus ceded territory.....	47	181	446	163	204	0.05	-11
Newly acquired territory.....	4	108	238	111	19	0.05	-92
Present territory.....	11	284	684	304	223	.05	+81
Post-war period: ¹¹							
1921.....	20	516	1,040	420	363	.07	+157
1922.....	20	516	1,260	708	381	.12	+127
1923.....	24	620	1,220	478	452	.09	+26
1924.....	24	620	1,319	1,017	1,013	.20	+4
1925.....	27	697	2,418	1,479	1,479	.29	0
Average, 1921-1925.....	23	594	1,571	820	777	.16	+43
1926.....	24	620	1,811	1,010	1,008	.20	+12

¹ 10 per cent of gross production also deducted for decay and other losses.² For populations see Table 67.³ Acreage and production for old Kingdom (9); ceded territories calculated from (9).⁴ 7,000 acres seeded in old Bulgaria. Less than 500 acres in territories ceded to Yugoslavia, and Rumania.⁵ See Tables 31 and 106.⁶ 25.32 bushels per acre—estimated to be the same seed per acre as Croatia-Slavonia (22, p. 27).⁷ 442,000 bushels minus 26,000 bushels produced on ceded territory. See Tables 31 and 106.⁸ Net imports for calendar years for the old Kingdom of Bulgaria (7, 1924-25). It is assumed that the ceded territories consumed the total net production.⁹ Estimated.¹⁰ Estimated by assuming that the yield per acre in this territory was the same as in the old Kingdom less ceded territories.¹¹ Same as in the old Kingdom less ceded territories.¹² Acreage and production for 1921 to 1926 from official records of U. S. Department of Agriculture, Bureau of Agricultural Economics.¹³ 25.32 bushels seed per acre used 1921 to 1925 as indicated in pre-war average.¹⁴ Net exports for calendar years (7, 1924-27).¹⁵ Less than 500 bushels net export.

Since the World War the potato area in Bulgaria has more than doubled and there has been a proportional increase in production. Average disappearance during the 5-year period ended 1925 is more than three times that estimated as normal during 1909-1912. A small surplus has been exported each postwar year. This is beyond doubt a permanent development in Bulgarian agriculture. Nevertheless climatic conditions are unfavorable to building up the potato-growing industry to the extent reached in the regions of light soils and abundant rainfall of north central Europe.

SUGAR BEETS AND BEET SUGAR

The beet-sugar industry of Bulgaria is built around five factories and refineries, all of which are operated for the most part with foreign capital (French, Belgian, and Czechoslovak) and without governmental control. Although these factories had a combined capacity sufficient to supply the needs of the country, their pre-war production averaged only about one-third capacity¹⁰ so that, before the Balkan War, Bulgaria was obliged to import sugar to a considerable extent.

The disappearance of sugar in Bulgaria during the year 1914 has been estimated to be equivalent to 29,706 short tons of raw sugar, or an average of 12.3 pounds (raw) per capita.

Bulgaria exported no sugar before the Balkan War. The import during the sugar year 1914 amounted to the equivalent of 12,355 short tons of raw sugar.

Since the World War the sugar factories have operated under the handicap of a shortage of beets. The peasants have held out for higher prices, which the factories have claimed they were unable to pay. At the same time it was reported that some of the factories made a clear profit as high as 140 per cent on the capital invested (44). After much agitation, the factories agreed to pay 820 leva¹¹ for each metric ton of beets produced, to which were added 4.4 pounds of refined sugar and half the beet pulp. This resulted in an expansion of beet acreage and a production of sugar above the domestic requirements of the country in 1924. But the price paid for beets was so high that the factories could not export sugar in competition with Czechoslovakia on a basis of profit comparable with their former internal operations. The sugar cartel petitioned the Government for an increase in import duties and demanded a bounty on the sugar exported. This the Government refused to grant and, as the factories had on hand sufficient sugar to cover domestic demand for about a year, they shut down and the whole industry was brought to a standstill.

In recent years the statistical disappearance of sugar in Bulgaria had increased each year until 1925, when it reached a maximum of 35,806¹² short tons. In 1926, there was a decrease to 31,912 short tons. As production increased, the importation of sugar had steadily fallen off between 1922 and 1924 but, after the factories had shut down

¹⁰ The principal drawback to the Bulgarian sugar industry has been the conservatism of the peasants in taking up the cultivation of a crop with which they were unfamiliar and which required much hand labor. The industry is comparatively new. Only one plant operated between 1898 and 1913, at which time two new plants were put into operation. In 1914, two additional factories were installed. The daily capacity of these factories is: Russe, 1,543 short tons of beets; Sofia and Gorna Orizhova, 1,102 short tons of beets each; Knyaz, 862 short tons; and Plovdiv, 551 short tons. In 1925 a concession was granted to establish a factory at Pleven to be run on cooperative lines with the assistance of local authorities.

¹¹ At the 1924 average yearly value of the lev (0.728 cent), this would be equivalent to \$5.42 per short ton.¹² All sugars reduced to terms of raw sugar, calculated at the ratio of 100 refined=114 raw.

for the season of 1925, there was a sharp increase in imports, totaling 11,009⁵² short tons, during that calendar year. Toward the close of the year the Government increased the import duty on sugar and the factories contracted for nearly 50,000 acres of beets for the season 1926-27. The area harvested was 49,400 acres, producing 330,700 short tons of beets. There was a falling off in area to 39,000 acres in 1927 (Table 76).

TABLE 76.—Sugar beets and sugar: Acreage and production of beets, production, import, and disappearance of sugar in Bulgaria, 1914 and 1921-1926

Year	Sugar beets		Raw sugar ¹			
	Acreage	Production	Production	Released by factories	Import	Disappearance
	Acres	Short tons	Short tons	Short tons	Short tons	Short tons
1914.....	36,610	209,494	26,602	17,353	12,353	29,705
1921.....	30,630	129,491	16,008	17,046	3,040	20,086
1922.....	25,201	165,538	22,040	17,499	5,442	22,941
1923.....	49,670	332,468	33,329	23,654	3,319	26,973
1924.....	64,113	415,635	48,634	29,065	1,979	27,864
1925.....	12,660	17,960	1,971	24,767	11,009	38,806
1926.....	49,400	330,700	40,000	31,912	0	31,912

1914-1925, sugar production, amount released by factories, import, and disappearance (8, Ann. 17, p. 859); 1926 from report of Consul Stuart Leighton, dated Sept. 9, 1927.

Sugar beet area and production 1921-1924 (8, Ann. 17, p. 159); 1925 and 1926 (16); and 1914 (8 Ann. 6-14).

¹ Converted from refined on the basis raw equals refined : 114 : 100.

² Largely seed beets and breeding plots in connection with factory development.

The Bulgarian peasants are well adapted to the development of specialized industries just as are the Czechs. They can easily develop sugar production to the full needs of the country and to create a surplus for exportation.

As a sugar-exporting country Bulgaria can not compete with Czechoslovakia. Each year during the 4-year period ended 1924-25 Czechoslovakia planted an average of 596,133 acres, producing 6,049,941 short tons of beets, from which 1,057,680 short tons of raw sugar were obtained. During the same period Bulgaria averaged 42,254 acres, 273,284 short tons of beets, and 29,853 short tons of raw sugar. The yield of beets per acre in Czechoslovakia was 10.1 short tons against 6.5 in Bulgaria. One ton of beets yielded 0.175 short ton of sugar in the former country against 0.109 short ton in the latter. Of necessity, export trade must be developed with those countries (probably to the south) that offer to the Bulgarian sugar industry the advantage of proximity of markets or advantageous trade relationships.

TOBACCO

The most pronounced change in the agricultural situation in Bulgaria, since the World War, has been the advance in the exportation of tobacco, which has increased from a position of relative unimportance in value, to first place among the native products sent abroad. The old Kingdom of Bulgaria exported about 4,492,000 pounds of tobacco annually during 1909-1912. This tobacco export was valued at 1,746,067 leva or \$336,991.⁵³ In 1925, the shipment of

leaf tobacco from Bulgaria reached 74,179,000 pounds, valued at 2,329,022,621 leva or \$17,041,459.⁵⁴ In addition, shipments of manufactured tobacco totaled 98,105 pounds valued at 3,913,415 leva or \$28,634.⁵⁴

Foremost among the several factors associated with this increase in the quantity of tobacco exported from Bulgaria was the acquisition of extensive tobacco-producing districts from Turkey at the close of the Balkan War.

The most important district for the production of those small leaved, highly aromatic sorts of tobaccos generally known as "Turkish" has centered for many years in the former Ottoman Provinces of Macedonia and Thrace. The belt in which "Turkish" tobacco could be cultivated, extended northward beyond the boundaries of the former Turkish Empire into the southern provinces of the old Kingdom of Bulgaria and Serbia, west into Herzegovina and Montenegro, south into the old Kingdom of Greece (both mainland and islands) and across the Egean Sea into Asia Minor.

At the end of the World War, the very heart of this rich tobacco-producing area, which had formerly been part of Turkey in Europe, was annexed by Greece. A portion of Macedonia, now included in the district called south Serbia, was incorporated in Yugoslavia, and the northern parts of Thrace and Macedonia were annexed by Bulgaria. Although the tobacco produced in this newly acquired territory was not of the very high "aromatic" quality produced about Xanthi or Mahala in Greece, it was greatly superior to the grades formerly produced in the old Kingdom of Bulgaria.

For many years before the World War, tobacco growing in the old Kingdom of Bulgaria had been an important industry in the counties of Plovdiv and Starazagora in south Bulgaria and in Kyustendil in south west Bulgaria. In the hill regions the better grades of "basma"⁵⁵ were practically equal in quality to the better grades of similar Turkish export tobacco. Much of the tobacco produced in the southern counties of the old Kingdom was of the coarser bachi-bali grade or of even lower quality not suitable to meeting the requirements of the export trade. In the northeastern counties of Varna and Sumen an inferior quality of tobacco was produced, practically all of which was consumed domestically.

Before the Balkan war the total area under tobacco in the old Kingdom averaged 21,159 acres, producing 14,512,000 pounds, of which about 4,492,000 pounds were exported and 10,020,000 pounds were consumed domestically.

Bulgaria transferred to Rumania and Yugoslavia territories in which the pre-war tobacco area averaged 2,807 acres, producing 1,794,000 pounds. The local inhabitants consumed about 1,249,000 pounds annually, releasing approximately 545,000 pounds for shipment to other parts of the Kingdom. Little or none of this tobacco was suitable for export.

The estimated area under tobacco in the newly acquired territories averaged 9,505 acres, which was equivalent to 44.9 per cent of the acre-

⁵³ During 1925, the average value of the lev was 0.7317 cent.

⁵⁴ These tobaccos are "manipulated" after drying; that is, they are assorted, leaf by leaf, according to size, shape, and color. The small leaves of an oval or oblong form with extremely fine stems and veins are called "basma". The next grade called "bachi-bali" (Turkish for thick head) includes different sized leaves with coarse veins and stems.

⁵² All sugars reduced to terms of raw sugar, calculated at the ratio of 100 refined=114 raw.

⁵³ The par value of the lev was 193 cents.

age formerly planted in the old Kingdom and more than three and one-third as great an area as was devoted to tobacco in the ceded districts. Annual production averaged 6,210,000 pounds of which the local population consumed 826,000 pounds, releasing 5,384,000 pounds for export.

Based upon these estimates the pre-war area under tobacco in the territories comprising the present Kingdom of Bulgaria is computed to be, as indicated in Table 77, approximately 27,857 acres. Production averaged about 18,928,000 pounds and disappearance 9,607,000 pounds or approximately 2.2 pounds per capita. The pre-war exportable surplus thus averaged about 9,321,000 pounds each year.

TABLE 77.—Tobacco: Statistical balance of Bulgaria, average 1909-1912, 1921-1925, and annual, 1921-1927

District and year	Acreage	Production	Disappearance		Exportable surplus
			Statistical	Per capita	
Pre-war average, 1909-1912:		1,000 lbs.	1,000 lbs.	Pounds	1,000 lbs.
Old Kingdom minus ceded territory.....	18,332	112,718	8,781	2.20	13,367
Newly acquired territory.....	9,595	6,210	826	12.20	5,284
Present territory.....	27,857	18,928	9,607	2.20	9,321
Post-war period:					
1921.....	57,914	35,923	.....	.....	44,561
1922.....	83,098	58,077	.....	.....	64,244
1923.....	147,316	118,951	81,058	16.18	37,893
1924.....	121,806	108,447	38,406	7.59	70,941
1925.....	126,021	86,948	15,671	3.07	74,277
Average 1921-1925.....	107,249	82,269	.....	.....	58,203
1926.....	78,000	59,942	.....	.....	61,008
1927.....	63,000	34,811	.....	.....	.....

Acreage and production for 1901-1912, old Kingdom less ceded territory, calculated from (9).

1909-1912, newly acquired territory estimated.

1921-1924 (9, 1924, p. 60).

1925 (7, 1925-26).

1926 and 1927 (18), (5).

Exports 1921-1924 (11) and 1925 (12).

1926 preliminary, from Economic and trade note by Wm. E. Nash, American trade commissioner, Mar. 18, 1927.

¹ Total acreage for old Kingdom, 21,159 acres, and production, 14,512,000 pounds (9).

² Estimated by assuming the exports to be the same proportion to production as in the old Kingdom.

New exports for old Kingdom, 4,692,000 pounds (17).

³ Estimated to be the same as the old Kingdom less ceded territory.

⁴ 1921 includes 128,000 pounds cigarettes and manufactured tobacco; 1922 includes 255,000 pounds; 1923, 85,000 pounds; 1924, 75,000 pounds; and 1925, 95,000 pounds.

Not only did Bulgaria acquire actual territory from Turkey at the close of the Balkan War in which tobacco growing was the chief occupation; but, during and after that war many refugees from the battle sites in Macedonia and Thrace emigrated to Bulgaria. As a large number of these immigrants into Bulgaria had been engaged in tobacco production, they brought with them special knowledge acquired in the southern Turkish tobacco districts as well as seeds of new varieties. These they put to use in the tobacco-growing districts of Bulgaria.

In the meantime the former Turkish tobacco industry had been disrupted. Extensive areas had been devastated, population had been decimated, and production curtailed. Prices were good and, under the stimulus of profitable demand and ready markets, acreage in Bulgaria increased. By 1921, the acreage under tobacco in the

new Kingdom was more than double what it had been in these same territories during 1909-1912. In that year, the actual exportation of tobacco was nearly five times as large as had been the average surplus available for export before the Balkan War.

Tobacco areas continued to increase, until the bumper year of 1923, when the maximum of 147,316 acres was reached. This large acreage and production were coincident with a practical suspension of tobacco shipments from Greece.⁴ During the year 1924, fully 70,041,000 pounds of leaf and manufactured tobacco were exported and the following year 74,277,000 pounds were shipped abroad.

Before the Balkan War the old Kingdom of Bulgaria exported leaf tobacco to Egypt, Austria-Hungary, Germany, Turkey, Belgium, Italy, and even to Samos and Syria. The tobacco grown about Khaskovo was much sought after by the factories in Samos.

In 1925 leaf tobacco exports went to Germany, 26,388,213 pounds; 14,022,372 pounds; Czechoslovakia, 9,910,347 pounds; Austria, 9,793,365 pounds; Poland, 5,779,017 pounds; Belgium, 2,230,389 pounds; Holland, 2,113,570 pounds; Hungary, 1,857,391 pounds; and 2,084,044 pounds to other countries, including 713,966 pounds to the United States.

In addition to exports of leaf tobacco, Bulgaria exported 94,606 pounds of cigarettes. Austria, Turkey, Rumania, and Germany were the chief customers. A small quantity of manufactured tobacco, (3,499 pounds) was sent to Austria and other countries.

Up to 1923, there was no effort on the part of the State to regulate the tobacco industry of the Kingdom, but in that year a tobacco law was enacted, regulating every phase in the industry, which was already loaded with district and township taxes and high export duties. It became increasingly difficult for Bulgaria to meet the competition of Greece and Turkey and only the finest grades of leaf found a ready market. The industry suffered from overproduction of the medium and low grades and by the end of 1925 about 88,000,000 pounds of old crops remained in the country unsold, in addition to the 90,000,000 pounds harvested in that year.

Merchants and manufacturers were so overtaxed and overregulated that the entire tobacco industry became stagnant. Several firms moved their businesses to Turkey. Before the close of the year a law was passed, which cut the export duties on the crop of 1925 in half and permitted free export in 1926. In spite of these modifications of the regulations, the 1926 area of tobacco dropped to 78,000 acres and preliminary estimates indicated a further drop to 63,000 acres in 1927. This indicates that the spectacular flurry in the Bulgarian tobacco industry is at an end, and that future areas and production will be more in keeping with the world demand for such grades of tobacco that Bulgaria can produce. The crises in the Macedonian and Turkish industries created an artificial demand for northern-grown tobacco; but, now that these crises are over, the countries to the south are again competing for the American and European trade.

Little if any of the tobacco produced in Bulgaria is of the cigar or pipe-tobacco types. It is strictly a cigarette tobacco and as such must

⁴ In 1922 the Greek Government required that 40 per cent of the foreign money received in payment for tobacco exportations be sold to the treasury at a rate of exchange much below that current in business transactions. At the end of 1923 much of the 1921 crop and practically all of the 1922 crop was still stored in warehouses and no offers of purchase were made for the crop of 1924. There was practically no movement of tobacco from Greece's ports until April, 1924, after the export law had been greatly modified. Only 42,000,000 pounds were exported during that year.

compete with the Grecian and Turkish products. This northern-grown tobacco can not compete with the prime classes of the highly aromatic varieties produced in Greece, but can meet on a plane of equality only the second and low-grade sorts. It was reported, in 1924, that Bulgarian and Virginia tobaccos had superseded Grecian tobacco in the Baltic States and was meeting with favor in Germany.

In 1926 Germany was the chief purchaser of Bulgarian tobacco followed by Italy, Czechoslovakia, and Holland in the order named. As shown in Table 78, total exports reached 61,068,000 pounds.

TABLE 78.—Tobacco: Exports from Bulgaria by countries, 1923-1926

[In thousand pounds—i. e., 000 omitted]

Country to which exported	1922	1923	1924	1925	1926
Germany.....	33,347	6,696	24,102	26,395	20,553
Italy.....	16,397	8,745	10,227	14,026	11,262
Czechoslovakia.....	5,030	5,152	13,973	9,912	8,539
Hungary.....	2,326	733	2,559	1,859	(1)
Holland.....	1,363	889	3,306	2,115	5,464
Austria.....	1,498	14,245	7,122	9,356	3,980
United States.....	1,168	872	787	714	(1)
Belgium.....	1,047	311	2,039	2,231	2,221
Egypt.....	459	117	426	442	1,013
Poland.....	286	52	4,338	5,779	3,454
Great Britain.....	51	1	104	288	251
France.....	40	1	102	110	494
Switzerland.....	1	11	1	49	94
Other countries.....	1,241	48	725	500	4,628
Total.....	64,244	37,895	70,041	74,277	61,068

1922-1925, compiled from (8, Ann. 17, p. 276).

1926, from economic and trade note March 18, 1927, Wm. E. Nash, American trade commissioner.

1 If any, included in other countries.

After the tobacco is sun dried, the producer assort the leaves according to color and size, binding six selected leaves of similar quality into a packet called a "pastal." The pastals are then piled into the form of an oblong bale in such a way that they can be readily examined. Burlap is placed at each end of the bale, which is so bound that four sides are left uncovered to permit free circulation of the air and easy examination of individual pastals.

When these bales of pastals are received at a merchant warehouse the leaves are moistened by an expert to minimize breakage during the process of sorting and classification which follows. The pastals are first roughly classified according to size and color into piles, from which expert graders take each leaf separately. The tobacco is then examined leaf by leaf and packed, with the stem toward the center, into the pressing frame. After the frame is full, the leaves are pressed and bound into a compact bale with a protection of burlap at the ends only, four sides being left open to permit of circulation air and inspection of the leaf. Usually two girls handle the basma grades to each five or six handling the bachi-bali or common grade.

During transportation from the producer to the merchant's warehouse there is a shrinkage of about 2 per cent. During manipulation, there is a shrinkage of 2 to 5 per cent; and, between that time and exportation, from 2 to 4 per cent. Normal shrinkage is about 6 to 10 per cent. From 2 to 8 per cent of the tobacco becomes scrap, most of which is consumed locally.

In a broad sense the tobacco industry of Bulgaria (as far as the exportation of the basma and bachi-bali grades is concerned) is a part of, or is intimately associated with, the tobacco industry of Greece, Turkey, and Yugoslavia.

The production of tobacco in this Balkan-Asiatic region in 1923 was nearly double and in 1924 was more than double that of 1920. (Table 79.)

TABLE 79.—Tobacco: Production in specified countries, 1920-1926

[In thousand pounds—i. e., 000 omitted]

Country	1920	1921	1922	1923	1924	1925	1926
Bulgaria.....	64,699	35,223	58,077	118,951	108,447	89,948	59,942
Yugoslavia.....	17,210	26,046	20,704	38,231	78,663	26,560	32,682
Greece.....	69,850	49,853	56,857	127,358	75,469	129,243	120,199
Turkey.....	31,365	113,389	(1)	57,268	115,415	118,356	88,184
Total.....	182,964	125,721	.....	341,838	377,994	364,137	300,977

1920-1926 for Bulgaria, Yugoslavia and Greece, compiled from (77, 1925, 1925-26; 18 [p. 18]).

1920 and 1921 for Turkey, compiled from Consular Report No. 37153, June 30, 1921.

1923-1926 from Commerce Report No. 49013, Athens, dated Feb. 3, 1927.

1 Failing off in 1921 on account of war in Anatolia.

2 Not available.

COTTON

There were 7,640 acres of cotton reported under cultivation in Bulgaria in 1925-26, 7,000 acres in 1926-27, and 22,000 acres in 1927-28. Production during these three years was 815,482 pounds, 1,500,000 pounds, and 4,600,000 pounds, respectively.

In 1925 Bulgaria imported 486,736 pounds of raw cotton. (Table 80.)

TABLE 80.—Cotton, raw: Imports into Bulgaria by country of origin, 1922-1925 (8, Ann. 17, p. 248)

Imported from—	1922	1923	1924	1925
	Pounds	Pounds	Pounds	Pounds
Greece.....	19,321	51	.....	.....
Turkey.....	14,156	22,648	.....	.....
Italy.....	10,582	43,569	13,228	436,321
Egypt.....	3,135	.....	.....	.....
United States.....	893	1,122	.....	50,415
England.....	.....	122	.....	12
Germany.....	.....	.....	13,370	.....
Czechoslovakia.....	.....	.....	.....	.....
Total.....	48,087	67,412	26,598	486,736

1 Probably samples received by mail.

LIVESTOCK

Field-crop production predominates in the farming operations conducted in Bulgaria. The livestock maintained by each peasant is usually restricted to those animals that are economically essential to the conduct of farm work or to supply the immediate simple food and clothing requirements of the peasant family. Bulgarian agriculture is characterized by small holdings of crop lands divided into minute, irregularly shaped, scattered plots, which are unfenced. The pasture lands that are owned as common property by the village

community afford very poor grazing. Except in rare cases, it is impracticable for a peasant to graze large animals on his little parcels of land, and the number of animals that he is allowed to graze in the common village pasture is limited by the regulations of the village council.

These conditions inhibit the general development of an animal industry throughout Bulgaria. In a few instances a peasant is so situated that it is possible to maintain livestock on a commercial scale. There are a few farms on which sheep herding or cattle breeding or (more seldom) hog production are the chief sources of income. Among 494,950 owners of livestock in 1905, only 8,752 are reported as engaged in animal industry as their principal occupation.

The Bulgarian peasants rarely eat beef. Their staple meat diet is pork interspersed with lamb at certain seasons of the year; occasionally a sheep or goat is slaughtered for food. Only in Sofia and certain other of the larger cities is a regular supply of fresh meat on sale. The consumption of meat is restricted even in the cities. The demand for prime cuts is so low that there is little incentive to feed animals exclusively for slaughter and much less encouragement to breed high-grade beef and mutton types. Consequently, the breeding of livestock (particularly cattle) is at a very low stage in Bulgaria.

Cattle are produced in Bulgaria almost exclusively for work. As shown in Table S1, the value of the work done by cattle in 1910 was estimated at \$33,408,000, whereas the beef and veal produced amounted to only \$2,663,000. Even though dairying is at a very low stage of development, the value of milk produced in this year exceeded that of meat in the case of cattle, water buffaloes, and goats and was about equal to the value of meat in the case of sheep.

Work constituted about 57 per cent of the value returned to Bulgarian farmers by their livestock in 1910. Meat was considered of secondary importance being 16.3 per cent of the total income derived from animals, followed by milk at about 12.2 per cent.

TABLE S1.—Income derived from specified livestock and livestock products, old Kingdom of Bulgaria, 1910 (25, p. 227)

[In thousands—i. e., 000 omitted]

Class	Meat, and live animals exported		Milk		Wool, hair, and bristles		Eggs		Manure		Work		Total
	Leva	Dolla.	Leva	Dolla.	Leva	Dolla.	Leva	Dolla.	Leva	Dolla.	Leva	Dolla.	
Horses	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,800	920	20,728
Mules	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	107	19	444
Asses	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	300	58	1,390
Cattle	13,800	2,663	21,300	4,111	.....	.....	.....	.....	.....	.....	8,000	1,544	216,200
Buffaloes	5,300	1,004	12,000	2,316	.....	.....	.....	.....	.....	.....	2,100	405	10,750
Sheep	20,500	5,192	20,200	5,067	17,800	8,435	.....	.....	.....	.....	8,700	1,679	15,363
Goats	4,600	888	9,100	1,756	600	116	.....	.....	.....	.....	1,500	290	3,050
Pigs	20,500	5,191	.....	.....	400	77	.....	.....	.....	.....	.....	.....	5,828
Poultry	10,200	1,969	.....	.....	.....	.....	20,900	5,192	.....	.....	.....	.....	17,161
Bees	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,332
Silkworm	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	656
Fish	1,500	289	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,500
Total	92,000	17,750	98,000	13,240	18,800	3,628	26,900	5,192	25,500	4,921	321,200	61,092	108,317

Value of the leva at par used, 19.3 cents.

¹ For honey.

² For cocoons.

³ Includes the value of honey and cocoons.

The old Kingdom of Bulgaria was surpassed, in Europe, only by Greece in the number of sheep and goats per 100 inhabitants in 1910; by Denmark and Sweden in the number of cattle (including water buffaloes); and by Denmark, Rumania, and Russia in the number of horses.

During the later centuries that Bulgaria was under Turkish domination, considerable attention was paid to horse breeding, and a fairly characteristic breed was developed through systematic crossing of Arabian blood on the sturdy ponylike horses that the Bulgars had brought with them from the steppes of Russia. In recent years, before the World War, the Bulgarian Government attempted in a small way to stimulate breeding by extending credits to private purchasers of pedigreed stock and by maintaining breeding stations under the direction of the State. But these undertakings were inadequate to the needs of the country, though the status of horse breeding was somewhat better than that of cattle. In many villages not even a bull of the native unimproved breeds was to be found. During the recent Balkan War with Turkey and subsequently during the World War, the best animals were requisitioned for military purposes.

Since the World War Bulgaria has been compelled, by the terms of the treaty of Neuilly, to surrender to Rumania and Yugoslavia many thousands of animals, which naturally were selected from the best individuals remaining after the inroads of military requisitions. As a result, Bulgarian stocks of animals are greatly depleted and the average quality is far below that of the low level of pre-war days. Efforts are now being made to improve conditions and two commissions have been sent to purchase breeding animals in Switzerland, Germany, Austria, and Hungary.

Reparation payments do not appear in the official statistics of Bulgaria so that the exportation of live animals, as shown in Table S2, are in addition to those sent to the countries of the Allies in payment of reparations. Between 1922 and 1925, live animals were exported almost exclusively to Greece and Turkey.

TABLE S2.—Livestock: Exports from Bulgaria, 1922-1925 (8, Ann. 17, p. 269)

Livestock and destination	1922	1923	1924	1925
	Number	Number	Number	Number
Buffaloes:				
Greece	15	826	826	3,353
Turkey	567	170	370	337
Total	602	170	1,196	3,730
Cattle:				
Greece	288	2	10,823	18,830
Turkey	2,353	842	2,951	1,888
Total	2,641	844	13,774	20,718
Sheep:				
Greece	8,335	1,844	55,560	140,617
Turkey	79,668	32,387	57,029	139,352
Rumania	27	.....	.....	.....
Yugoslavia	.....	.....	.....	255
Total	88,030	34,231	112,589	280,224
Lambs:				
Greece	2,477	167	1,937	22,508
Turkey	5,388	3,402	3,062	3,740
Austria	.....	.....	1	.....
Russia	2	.....	.....	.....
Total	7,864	3,569	5,000	26,208

TABLE 82.—*Livestock: Exports from Bulgaria, 1922-1925 (8, Ann. 17, p. 269)—Continued*

Livestock and destination		1922	1923	1924	1925
		Number	Number	Number	Number
Goats:		530	147	17,914	40,583
Greece.....		7,020	1,348	4,555	4,054
Turkey.....				1	
Austria.....					
Total.....		7,540	1,495	22,470	44,617
Pigs:		661	646	1,327	
Greece.....		2,279	1,882	569	626
Turkey.....		1	4	9	3
Rumania.....				3	2
Yugoslavia.....		2	7	42	17
Other countries.....					
Total.....		2,943	1,893	1,269	1,975

HORSES

The agricultural use of horses in Bulgaria had been increasing before the outbreak of the World War. Horse breeding was carried on extensively for several hundred years, under the Turks, during which time the characteristics of the mixture of native horses brought into the country by the Slavs and other peoples were greatly modified and improved. A fairly uniform type of horse has been developed. In north Bulgaria the average run of village horses is far superior to those found in Rumanian or Serbian villages. At the time of the liberation of Bulgaria from the Turkish yoke horse breeding was disrupted. The Bulgarian Government imported a few purebred horses and established several breeding stations throughout the country before the World War, but not of the magnitude of the breeding operations of the former Turkish rulers. At present the Ministry of Agriculture directs the work of improving draft animals whereas the Ministry of War has charge of improving the quality of native horses for remounts and artillery uses.

In 1920 there were 1,182 horses of foreign origin in Bulgaria and only 2,123 offspring of foreign-bred horses crossed on native stock. There were 7,767 stallions registered as breeding animals. There were 10,152 unregistered stallions used as saddle horses and 27,142 used as pack and draft animals. Under the conditions prevailing in Bulgaria, these inferior animals undoubtedly produced offspring.

Horses are used almost exclusively for field work in north Bulgaria, whereas, in the districts of the south and southwest oxen are still favored by the peasants. However, most of the progress that had been made during the 35 years of freedom from the Turks was nullified by the ravages of the Balkan and the World Wars.

In 1910 there were 197,910 households possessing horses; 57,90,171 proprietors had only 1 horse; 35,218 possessed 2 to 3 horses; the remainder owned 4 or more horses each. The value of the work done by horses in the old Kingdom of Bulgaria in 1910 was estimated at 102,600,000 leva or \$19,802,000.²⁸ This was 31.9 per cent of the value of all work performed by farm animals in that year. There were 478,222 horses in the old Kingdom in 1910 of which 78,222 were found in the territories later ceded to Rumania and Yugo-

²⁸ There were 770,000 households in Bulgaria in cities and rural communities in 1910.²⁹ Converted at par value of 19.3 cents to the lev.

slavia. The pre-war number of horses in the newly acquired territories has been estimated at 25,000. (Table 83.) The number of horses in present-day Bulgarian territory, before the World War, was thus approximately 425,000.

The ravages of war were not as severe upon the numbers of horses in Bulgaria as might have been expected since in 1920 there were only 27,000 fewer horses in the country than in 1910.

No official figures have been issued since 1920.

TABLE 83.—*Horses: Number in the old Kingdom of Bulgaria and in the present Kingdom, specified years*

Territory and year	Horses	Per 1,000 acres	Per 1,000 inhabitants
	Number	Number	Number
Old Kingdom of Bulgaria:			
1892.....	343,946	14	104
1896.....	494,557	21	132
1900.....	538,272	23	133
1905.....	478,222	20	116
1910.....	400,000	19	100
Old Kingdom minus ceded territory: 1910.....	25,000	6	67
Newly acquired territory: 1910.....			
1910.....	425,000	17	97
1920.....	398,000	16	82

1892-1910, old Kingdom, compiled from (55, p. 232).

1910 ceded territory, calculated from (59).

1910, territory acquired from Turkey estimated from (8, Ann. 5-14, sec. B, pp. 70-71).

1920, from same source as 1910 acquired territory.

During the 5-year period ended 1910, Bulgaria exported on the average 4,508 horses, mostly to Turkey, Greece, and Rumania. On the average, 2,433 horses were imported each year.

There is no record of the exportation of any horses since the war.

CATTLE

The whole economic and philosophic life of the Bulgarian peasant centers in his cattle, which are always bred as beasts of burden. There are two local races, the Isker and the Pleven. The various peoples who preceded the Slavs in their migrations into the Balkans probably each brought with them some sort of domesticated cattle, but these have disappeared. The Slavs, as well as the Tartar Bulgars (a corruption of the word Volgar) brought with them the large, rangy, gray, steppe cattle of southern Russia. Neither during the centuries under the Ottoman Empire, nor during the past 48 years of Bulgarian freedom, has the Government done much toward the systematic improvement of these native breeds.³⁰

In recent years there have been attempts to increase the milk supply through the introduction of Swiss and other northern breeds but the results have not been greatly significant. The low stage of cattle breeding is indicated by the fact that, in 1920, there were only 2,209 bulls among 1,877,105 cattle, excluding water buffaloes, in present Bulgaria as compared with 100,907 bulls among 1,940,516 cattle in present Hungary. In Bulgaria only 966 animals were of foreign origin and only 5,521 were crosses between native and foreign stock.

³⁰ According to an inquiry made by the Ministry of Agriculture in 1911, out of 1,115 agricultural communities, 338 had no bull. There were 1,496 bulls and bull water buffaloes in the other communities of which 1,100 were of native breeds, 24 were Simmenthals, 12 were Montadon, and 4 were of English breeds.

Before the introduction of the distillation of alcohol practically all cattle intended for slaughter were grass fed or, in rare instances, they were given a little corn. Later, distilleries bought up lean cattle to which they fed the refuse from alcohol manufacture. In recent years the pulp from sugar factories has been used to fatten cattle. It is estimated that, before the World War, not more than 200 to 300 cattle, destined for exportation to Turkey, were fattened on commercial by-products each year. In 1920 it is reported that 4,848 steers and 2,648 cows were being stall-fed for slaughter.

There was a total of 775,000 households in the cities and rural districts of Bulgaria in 1910, among which 356,178 possessed 1 or more steers or water buffaloes. There were 28,040 households which possessed only 1 work animal, whereas, 256,435 households owned 2; 59,889 owned 3 or 4; and 11,814 owned 5 or more.

The value of the work done by cattle in 1910 was estimated at 209,500,000 leva or \$40,433,000.⁶⁰ This is 65.2 per cent of the total value of all work done by farm animals in the entire Kingdom.

Between 1900 and 1910 the numbers of cattle in Bulgaria remained practically stationary. It has been reported, however, that more and more of the farm work, particularly in north Bulgaria, was being done by horses. There were 2,019,000 cattle and water buffaloes in 1910 in the old Kingdom of Bulgaria.

There were 212,000 cattle and buffaloes in 1910, in the territories that were later ceded to Rumania and Yugoslavia. On the other hand, the 1910 estimate for cattle and water buffaloes in the newly acquired territories has been placed at 244,000. Thus, before the World War there were approximately 2,051,000 cattle and water buffaloes in the territories now comprised within the frontiers of Bulgaria.

The ravages of war do not appear to have affected the numbers of cattle in Bulgaria. As shown in Table 84, the returns for 1920 indicate 2,295,000 cattle and water buffaloes or an increase of 244,000 above the pre-war estimates.

No official statistics have been published as to numbers of cattle since 1920.

TABLE 84.—Cattle, including water buffaloes: Number in the old Kingdom of Bulgaria, and in the present Kingdom, specified years

Territory and year	Cattle, including buffaloes	Per 1,000 acres	Per 1,000 inhabitants
	Thousands	Number	Number
Old Kingdom of Bulgaria:			
1892.....	1,793	74	334
1900.....	2,027	85	341
1905.....	2,173	91	338
1910.....	2,019	85	465
Old Kingdom minus ceded territory: 1910.....	1,807	84	453
Newly acquired territory: 1910.....	244	62	650
Total, present boundaries:			
1910.....	2,051	80	470
1920.....	2,295	90	473

1892-1910, old Kingdom, compiled from (85, pp. 248, 249).

1910, ceded territory, calculated from (10).

1910, territory acquired from Turkey, estimated from (8, Ann. 5-14, sec. B, pp. 70-71).

1920 from same source as 1910 acquired territory.

⁶⁰ Converted at par value of 19.3 cents to the lev.

DAIRYING

Dairying in Bulgaria is incidental to supplying Sofia and a few other cities with butter and liquid milk. In 1910 there were 426,664 cows and 154,420 female water buffaloes in the old Kingdom. In that year 9,910 city households kept 1 cow or milk water buffalo, 4,930 kept 2, and 1,204 kept 3. There were only 181 dairies within city limits that maintained 9 or more cows, 232 with 6 to 8 cows, and 756 with 4 to 5 cows. Milk is produced and distributed under the most primitive conditions. It is generally considered unsafe to use milk for drinking until it has been sterilized by boiling. Certified bottled milk is unknown.

In the country cows were kept for work, for breeding, and for replacement, milk production having been entirely incidental. There were 250,978 households in 1910, that possessed only 1 or 2 cows and 32,501 households with 3 cows each. In the vicinity of cities there were some 1,040 farms with 9 or more cows. Few if any, of these farms were exclusively devoted to dairying. On 19,241 farms, 4 to 5 cows were maintained and 6 to 8 cows were found on as many as 4,054 farms. Almost without exception, the main purpose of cows was the replenishment of farm power.

Even under these primitive conditions, the quantity and value of the milk produced in 1910 was greater than that of beef and veal. It was estimated that 367,723 cows produced 220,341,200 pounds of milk valued at 21,300,000 leva or \$4,111,000,⁶¹ whereas there were only 143,326 head of cattle slaughtered or exported, equivalent to 33,840,600 pounds of meat, valued at 13,800,000 leva or \$2,663,000.⁶¹

Similarly, 120,000 water buffalo cows produced 121,643,655 pounds of milk valued at 12,000,000 leva or \$2,316,000,⁶¹ as contrasted with 38,000 slaughtered or exported, equivalent to 14,352,000 pounds of meat valued at 5,200,000 leva or \$1,004,000.⁶¹ As sources of meat, cattle and water buffaloes combined are excelled by hogs and by sheep. The quantity of milk yielded by sheep and goats exceeds that produced by cows and water buffaloes.

In 1920, there were 234,280 cows classified as breeding animals, 225,915 as breeding and draft animals. Only 82,629 were classed as milk cows and 2,648 were being fattened for beef.

TRADE IN CATTLE AND DAIRY PRODUCTS

There was a net export of a few hundred pounds of fresh milk during 1909-1913, whereas, since the World War, there has been no international trade in fresh milk except in the single year of 1923, when it was reported that a few hundred pounds were imported. On the other hand, an increasing quantity of condensed milk has been imported in recent years. Before the Balkan War, Bulgarian importations of condensed milk averaged around 29,000 pounds yearly. Between 1922 and 1925, importations increased from 4,899 pounds to 94,055 pounds. (Table 85.)

⁶¹ Converted at par value of 19.3 cents to the lev.

TABLE 85.—Condensed milk: Imports into Bulgaria, average 1900–1913, and annual, 1922–1925 (8, Ann. 17; 17, 1925–26)

Year	Imports	Year	Imports
	Pounds		Pounds
Average 1900–1913.....	126,101	1924.....	53,358
1922.....	74,899	1925.....	94,065
1923.....	19,215		

¹ Former boundaries.

² The only year in which Bulgaria exported condensed milk was 1922, when 8,818 pounds are reported to have left the country.

The condensed milk imported into Bulgaria was reported in 1925 to have come from Holland, Italy, and Great Britain in the order named. It may be probable that the recent reported reduction in the number of cattle has cut down the milk supply of Bulgarian cities and stimulated a demand for condensed milk. This demand will probably fall off somewhat when Bulgarian herds return to normal numbers, as they undoubtedly will. Nevertheless there should continue to be a permanent demand in Bulgaria for a considerable quantity of condensed milk because of the convenience of having on hand a supply of milk that has not soured.

The exportation of a small quantity of butter has been reported since the World War but, from all indications, this butter is made from sheep's milk rather than from cow's milk.

The exportation of cattle from Bulgaria, before the Balkan War, had been declining. During the 10-year period ended 1895 some 15,801 cattle were sent abroad annually. The average export between 1896–1910 was 14,742; but during the last five years of this period, only 9,442 animals were sent abroad each year. Almost without exception the cattle exported from Bulgaria were shipped to Greece and Turkey.

The postwar exports of cattle, exclusively to Turkey and Greece, have ranged between 2,681 in 1922 to 20,718 in 1925. (Table 82.)

It is reported that large numbers of the best individuals of all classes of livestock have been sent to Rumania and Yugoslavia in payment of reparations. For this reason, not only have cattle numbers been reduced but the quality of the livestock remaining in Bulgaria is below the average pre-war standard, although this standard was low.

Nevertheless, cattle are so essential to farm operations in Bulgaria that it is only a question of time before Bulgarian herds of cattle and water buffalo will return to their pre-war normal status.

SHEEP

All of the Slavic clans that migrated from Russia over the Carpathian Mountains into the plains of Hungary, and south into the Balkans, until checked by the Byzantine armies, were nomadic clans living almost exclusively on their flocks of sheep, from which they obtained food and clothing—milk, cheese, meat, wool, and skins. When they could migrate no farther they finally settled down to village life and slowly took up field cultivation. As the production of field crops prospered and the population became more dense, sheep herding tended to decrease. In recent years, before the World War, it was the practice of villages to hold pasture lands as common prop-

erty, and the restrictions placed on the use of forest lands had further tended to hold sheep raising at a remarkably constant level in proportion to the population. (Table 86.)

TABLE 86.—Sheep: Number in the old Kingdom of Bulgaria and in the present Kingdom, specified years

Territory and year	Sheep	Per 1,000 acres	Per 1,000 inhabitants
	Thousands	Number	Number
Old Kingdom of Bulgaria:			
1892.....	6,868	288	2,074
1900.....	7,015	298	1,974
1905.....	8,131	342	2,015
1910.....	8,669	364	1,959
Old Kingdom minus ceded territory: 1910.....	7,715	339	1,957
Newly acquired territory: 1910.....	953	218	2,599
Total, present boundaries:			
1910.....	8,581	357	1,958
1920.....	8,923	350	1,941

1892–1910, old Kingdom, compiled from (25, p. 851).

1910, ceded territory, calculated from (10).

1910, territory acquired from Turkey estimated from (8, Ann. 5–14, sec. B, pp. 70–71) 1920, from same source as 1910 acquired territory.

Between 1892 and 1910 the numbers of sheep per 1,000 inhabitants in Bulgaria tended to remain remarkably constant. The numbers of sheep per 1,000 inhabitants in the ceded and in the acquired territories were practically the same, so that the situation was not materially affected by the changes in territory following the World War.

Only 8,210 farms were devoted exclusively to sheep herding before the Balkan War. Most of these farms raised milk sheep, and milk cheese (kachkaval) was the principal product sold. In 1920, 369,239 Bulgarian households kept sheep. Almost without exception these sheep were the coarse, rangy, long-wool or one of the fat-tail varieties descended from the migrating flocks brought in by the ancestors of the Bulgarian Slavs from their former grazing lands on the Russian steppes.

The most common breed is called "Czizaia".⁶² The male lambs are usually slaughtered at 5 to 9 days of age, at which time the hair has assumed a tight curl similar to Persian lamb or karakul. The pelts of these lambs are cured and used in making caps and for trimming garments. Every peasant has a coat and other articles of clothing made from sheepskin or lamb pelts with the wool turned to the inside. The outside surface of the skin is decorated with some distinctive design that probably, in ancient times, was emblematic of the local clan. In the spring the carcasses of the baby lambs are consumed locally.

It is estimated that 2,420,000 lambs and 600,000 sheep were consumed in 1910, equivalent to 50,529,000 pounds of meat. On the other hand, sheep produced 314,693,000 pounds of milk which, soured by a special process or made into cheese, constitutes one of the chief articles of diet of the Bulgarian people. The value of sheep's milk exceeded that produced by cows. In 1910, the Bulgarians consumed only about two-thirds as much beef as mutton and lamb.

The income from the sheep industry in 1910 was estimated at 79,600,000 leva or \$15,363,000, whereas expenses were placed at

⁶² This breed is found in Rumania, Yugoslavia, Hungary, and eastern Czechoslovakia.

52,800,000 leva or \$10,190,000, leaving a gross profit of about \$5,173,000, or about 60 cents per head. This average profit was so small that the pre-war sheep industry had not developed on a commercial scale, but was maintained very closely to the requirements of individual households. Although this was the case, the number of sheep per 1,000 inhabitants in 1910 was 1,968, which was greater than in any other European country except the old Kingdom of Greece. Although in 1920 there was an increase of 342,000 sheep over the pre-war estimated number, the proportion per 1,000 inhabitants had diminished to 1,841.

In 1920 only 1,778 sheep are reported to be of improved foreign breeds and only 5,249 the result of crossing foreign blood on native strains.

No official report has been made on sheep numbers since 1920.

Wool

The most common size of flock in Bulgaria in 1910 ranged from 21 to 50 sheep. There were only 223 flocks in 1910 with more than 500 head. There is no special breeding of sheep in Bulgaria, reproduction being more or less haphazard. Colors range from white through gray and brown to black; the darker colors predominate. The wool is coarse and long, of the general type called "Czigai", which is found as far north as Slovakia, Ruthenia, and southern Poland. In 1910 the estimated wool production was placed at 19,228,000 pounds, as each animal sheared yields about 2.6 pounds.

Spinning and weaving wool in Bulgaria is a household industry. The women spin incessantly, employing the ancient distaff and spindle. Many households are equipped with crude looms upon which are manufactured cloths of various grades, blankets, and carpets. The coarse peasant cloth and homemade rugs constituted the principal form in which wool was exported from Bulgaria before the World War. It is reported that before the Balkan War an average of 13,889 pounds of washed and 105,159 pounds of unwashed wool were exported annually, almost exclusively to Serbia.

Since Turkish times the woolen industry has centered at Sliven and Gabrovo. At the former town there were 9 mills in 1924 with 10,652 spindles and 331 looms, and at the latter town there were 17 mills with 15,338 spindles and 301 looms. There were 6 mills at Samokov, Trievna, Kazanlik, and Karlovo with a total of 11,294 spindles and 125 looms. Other mills exist but no data are available.

Since the World War there has been no exportation of wool. On the other hand considerable quantities of washed and unwashed wool have been imported. (Table 87.) These are coarse and fine wools from Great Britain, France, Greece, Turkey, Holland, Italy, and Belgium.

TABLE 87.—Wool: Imports into Bulgaria, average 1909–1913, and annual, 1922–1925 (8, Ann. 17; 17, 1925–26)

Year	Washed	Unwashed	Year	Washed	Unwashed
	Pounds	Pounds		Pounds	Pounds
Average 1909–1913.....	1,368,168	1,869,053	1924.....	1,667,263	1,419,804
1922.....	943,745	2,104,655	1925.....	1,947,573	1,291,250
1923.....	2,466,838	2,512,590			

¹ Former boundaries.

Since the World War coarse peasant cloth and finer stuffs from commercial mills have been exported to Yugoslavia, Turkey, and Greece in minor quantities and a few tons of rugs have been sent abroad each year largely to the United States.

During the 5-year period ended 1910 Bulgaria exported annually to Turkey and Greece an average of 282,244 sheep, 30,556 lambs and 106,807 lambs under 6 months of age. In 1925, the exports to Turkey and Greece were: Sheep, 280,224; all lambs, 26,208.

During the period 1906–1910 the exports of sheep products averaged 208 short tons of prepared meats, 236 short tons of butter, 613 short tons of ordinary white cheese (similar to brinza), and 2,409 short tons of kachkaval cheese (made from boiled milk).

In 1925, shipments abroad were 5 short tons of butter, 14 short tons of ordinary cheese and 85 short tons of kachkaval.

SWINE

The production of pork in Bulgaria is as ancient as the country itself but it has never constituted an important commercial branch of the nation's animal industry. Hogs are raised for home consumption as it is a custom of the country to have a roast pig in each home at Christmas time. The commercial fattening of hogs for market has been rare. There were only 8 households out of 708,814 in Bulgaria, in 1905 that were engaged in the commercial production of pork. Between 1905 and 1910 the number of swine reported on farms varied but little, although there appears to have been a trend toward increased total numbers as well as more hogs per 1,000 inhabitants, as indicated in Table 88.

TABLE 88.—Swine: Number in the old Kingdom of Bulgaria and in the present Kingdom, specified years

Territory and year	Swine	Per 1,000 acres	Per 1,000 inhabitants
	Thousands	Number	Number
Old Kingdom of Bulgaria.			
1892.....	452	19	149
1900.....	368	15	86
1905.....	465	20	115
1910.....	527	22	121
Old Kingdom minus ceded territory: 1910.....	496	23	122
Newly acquired territory: 1910.....	60	13	160
Total, present boundaries:			
1910.....	546	21	125
1920.....	1,090	43	225

1892–1910, old Kingdom compiled from (26, p. 264). 1910, ceded territory, calculated from (10, 1910 territory acquired from Turkey, estimated from (8, Ann. 5–14, sec. 2, pp. 74–75). 1920 from same sources as 1910 acquired territory.

The swine of Bulgaria are almost exclusively the progeny of the aboriginal hogs that have been native to the country for centuries. In 1920, there were only 1,166 purebred swine of western origin and only 10,228 crossbred hogs among a total of 1,090,000.

An insignificant number of hogs and milk-fed pigs were imported each year, during the period before the World War, from Serbia and an equally insignificant number were exported to Rumania.

A concession was granted in 1926 to a British company for a monopoly of the export of all pork products. The concession provides for the construction of packing plants at Gorna Ojehovitca and warehouses at Varna and Burgas, for the erection of cold-storage works, and the maintenance of transport between Bulgaria and Great Britain.

In 1920, there were 1,090,000 swine in Bulgaria or about twice the pre-war estimate. There has been no official report on swine numbers since 1920. It is probable that swine numbers in Bulgaria will increase and, should the British enterprise prove successful, exports of pork products which, since the World War, have been insignificant, may tend to become a considerable item in the international trade of the country.

GOATS

The number of goats in Bulgaria changed very little during the period 1890 to 1910, at which time 1,411,610 were reported in the old Kingdom.

About 1,000,000 kids were produced each year, of which number about 500,000 were slaughtered. Some 220,000 mature goats were also killed as food, the total goat and kid meat produced annually being placed at approximately 13,536,000 pounds. Goats also produced 123,610,000 pounds of milk and 824,300 pounds of hair in 1910.

During 1906-1910 an average of 21,630 goats were exported each year. The number of goats decreased to 1,332,000 in 1920 which, as shown in Table 89, is 309,000 below the number reported in 1910. No official report has been made on the number of goats since 1920.

It is probable that the number of goats in Bulgaria will tend to recover their pre-war normal.

TABLE 89.—Goats, mules, and donkeys: Number in the old Kingdom of Bulgaria, and in the present Kingdom, specified years

[In thousands—i. e., 000 omitted]

Territory and year	Goats	Mules	Donkeys
Old Kingdom of Bulgaria minus ceded territory: 1910.....	1,332	12	115
Newly acquired territory: 1910.....	309	13	33
Total 1910.....	1,641	25	148
Total 1920.....	1,332	26	156

Old Kingdom of Bulgaria, (*S. Ann.* 4, p. 167). Ceded territories to Yugoslavia and Rumania, calculated from (*ib.*). Newly acquired territory from Turkey, estimated from (*S. Ann.* 8-14, sec. B, pp. 70-71). 1920 census figures (*S. Ann.* 6-14, sec. B, pp. 70-71).

MEAT PRODUCTION

There was practically no international trade in meat in Bulgaria before the World War. All meat produced was consumed within the country itself. Comparing the per capita consumption of various countries (Table 90), the Bulgarian people ate little meat, consuming about 41.2 pounds annually, as compared with 145.3 pounds in the United States and 105.4 pounds in France.

TABLE 90.—Meat: Total and per capita production in the old Kingdom of Bulgaria, 1910, and pre-war disappearance per capita in specified countries, 1912, and average, 1909-1913

Kind	Production in Bulgaria, 1910		Per capita disappearance			
	Total	Per capita	1912		Average 1909-1913	
			United States	Germany	Great Britain	France
	1,000 pounds	Pounds	Pounds	Pounds	Pounds	Pounds
Pork.....	66,469	15.82	68.1	71.6	38.9	46.7
Mutton and lamb.....	56,329	11.65	8.1	8.0	30.4	9.5
Goat and kid.....	13,536	3.12				
Beef and veal.....	33,840	7.80	68.1	36.9	62.7	40.2
Buffalo.....	14,352	3.31				
Total.....	178,726	41.20	145.3	114.5	131.1	105.4

Compiled from (*S.*, *S.*).

CONCLUSIONS REGARDING BULGARIAN AGRICULTURE

The agriculture of Bulgaria was not vitally affected by the land reform as was the case in Rumania. Nor did the World War particularly affect the agricultural situation. (The status of Bulgaria as an exporting country was affected by the changes in boundary following the Balkan and the World Wars. Bulgaria ceded to Rumania, in 1913, parts of several highly productive counties along the northeastern frontier and annexed from Turkey a relatively large area along the southern frontier that did not produce enough cereals to meet local needs. But this district was part of the Turkish tobacco region of the former Ottoman Empire, consequently tobacco has supplanted cereals as an article of export from Bulgaria. Tobacco production was carried to extremes between 1923 and 1925 but in recent years has tended to assume proportions more nearly in keeping with the requirements of the world market.)

The agriculture of Bulgaria is organized to supply the farmers' families with food and to provide feed for their domestic animals. Few farm units are operated on a commercial basis. The surpluses that are marketed are small in volume, lack uniformity, and are poor in quality compared with western standards.

There appears to be a trend toward increased wheat consumption in Bulgaria which has been partially met by increased acreage. Exports of wheat have averaged (1921-22 to 1925-26) about 40 per cent as large as the estimated pre-war surplus. The exportation of corn is also far below the pre-war average. The international trade in other cereals is unimportant.

There appears to be a trend toward increased livestock production which, together with increased bread consumption, should tend to keep cereal exports below those that, before the World War, were normal to the territories now comprised within the frontiers of Bulgaria. On the other hand, the potentialities of the country as a hog-producing territory have attracted the attention of British capitalists, who propose to commercialize the swine industry by

erecting packing plants and to organize direct lines of steamers to western Europe. If this venture should prove successful these packing plants could draw upon neighboring Rumanian and Yugoslavian territories for large numbers of hogs. If this industry is developed to the proportions that are evidently practicable, it would certainly affect the European market for American pork and pork products.

Bulgaria ships flour to Constantinople and other southeastern points, and is now in a position to export sugar to the Orient, but this competition with American products will probably not assume serious proportions.



FIGURE 4.—MAP OF YUGOSLAVIA

Yugoslavia comprises Slavonia (Carniola), Bosnia, Herzegovina, and Dalmatia, ceded by Austria-Hungary; Croatia-Slavonia and Vojvodina, ceded by Hungary; parts of two small districts ceded by Bulgaria, south Serbia annexed from Turkey, and Montenegro organized about the old Kingdom of Serbia as a nucleus. Vojvodina, eastern Slavonia, northeastern Bosnia, and northern Serbia situated in the watershed of the Danube River and its tributaries is a surplus producing region that exports field crops as well as animal products. The rest of the country is little more than self-supporting and many localities do not produce sufficient to supply local requirements.

THE AGRICULTURAL SITUATION IN YUGOSLAVIA

Yugoslavia, the Kingdom of the south Slavs (that is, the Kingdom of the Serbs, Croats, and Slovenes) was organized out of parts of the old Austrian Empire, parts of the former Kingdom of Hungary, parts of the Ottoman Empire, and all of Montenegro, grouped about the old Kingdom of Serbia as a nucleus.⁶³ Not only had this nucleus been penetrated and shattered by the Central Powers, but their armies had overrun all of the other territories that were later combined

⁶³ The Union of Serbs, Croats, and Slovenes was declared December 1, 1918, by the Prince Regent Alexander. The constitutional monarchy was proclaimed on June 28, 1921.

to form the new Kingdom. Montenegro had been devastated during the World war as had south Serbia and Macedonia, annexed by Serbia from Turkey in 1913.

With the exceptions of Montenegro and the old Kingdom of Serbia the affairs of these territories had for many years been administered by foreign Governments (Austria, Hungary, or Turkey) although Croatia and Slavonia had enjoyed a certain amount of autonomy and was therefore not so unaccustomed to local governmental administration as were the people of Bosnia, Herzegovina, and Dalmatia. At the time when these territories were combined to form the new Kingdom, the official machinery that had directed the political life of the greater part of Yugoslavia was withdrawn. Administrative officials and many owners of estates whose families had operated large holdings of land in these southern Districts for generations abandoned their homes and followed the retreating armies and civil officials to Vienna or Budapest.

The administrative problems that Yugoslavia was called upon to solve, at the time of its organization, were among the most varied and complex of those faced by any of the succession States, newly formed after the World War. At the outset of the new nation's existence, the central administrative functions were performed by the official governmental machinery of the old Kingdom of Serbia; which had to be stretched to the breaking point in order to cover the emergency situation until a more nearly representative administration could be organized.⁶⁴

In common with all of the succession States, Yugoslavia has had difficulty in balancing the national budget. National income was precarious. Four systems of taxation were in force—the Serbian, Austrian, Hungarian, and Bosnian. By 1926, these systems of collecting taxes had not yet been unified.

Before the World War systems of affiliated banks throughout the entire territory of the Yugoslavs had been controlled by the powerful moneyed groups in Vienna or Budapest, which in turn were closely associated with financial groups in Berlin. As is customary in southeastern Europe, the larger number of these banks maintained a commercial and an industrial department, which engaged in trade and manufacture or other forms of enterprise. Thus, before the World War the trade relationships of even the old Kingdom of Serbia, as regards both imports and exports, had been dominated by the financial interests of Austria-Hungary and Germany. Each of the other Districts, except Montenegro, had been directly under the industrial and commercial, as well as financial and political, control of either Austrian, Hungarian, or Turkish groups.

⁶⁴ This feat could never have been accomplished had it not been for the powerful, instinctive group-loyalty of these southern Slavic peoples who, though separated for decades from political and commercial cooperation, were strongly bound together by ties of blood relationship and common customs. One of the most powerful of these customs was, perhaps, obedience to a hereditary or elected central authority. This is illustrated by the form of family life peculiar to the Serbians. The Serbians formerly lived in groups called "zadruga," which included not only parents and children but all kinsmen of various degrees of relationship and sometimes distant relatives, who lived together in the same house or group of houses. The group activities were directed by a "starshina," generally the eldest member, or one who had distinguished himself by his conduct and his wisdom. Women have been elected to direct the affairs of the "zadruga." In the beginning of the nineteenth century "zadrugas" were numerous among the south Slavs, some including as many as 80 persons. But in recent times this form of group life has been dying out and, as young men have married, they have asked for separate allotments of land and have set up independent households. The "zadruga" system has continued and voluntary group action called a "zadruga" of one of more former "zadrugas" is common. This is similar to a house-raising bee, a threshing bee, or a quilting bee in American pioneer life. In Serbia a moba of men is assembled to harvest fields, or of women to card wool and spin. The spirit of cooperation is instinctive in the Serbian and, therefore, the formation of large cooperative organizations will be a natural development of the national life of Yugoslavia.

The trade routes of all of these territories had been developed in a northwesterly direction toward Vienna or Budapest, or in a southeasterly direction toward Istanbul (Constantinople). Lines of communication were designed to connect outlying local trade centers or seats of provincial government with the capitals and trade centers of the great empires to the north and the southeast. There had been little or no establishment of transverse channels of intercourse. The physical features of the country rendered this difficult. Furthermore, the policies of the Central Powers and their Turkish allies had tended to keep these southern Slavic peoples isolated, as far as possible, from each other and linked, as closely as possible, to the control centers of the Dual Monarchy.

One of the most striking anomalies of the first years of Yugoslavia's existence was the exportation of wheat from the northeastern surplus districts of the Kingdom to north central Europe at a time when Montenegro, Dalmatia, and parts of Slovenia (Carniola), which are normally regions of deficit production and which experienced a crop failure in 1922, were forced to import supplies of cereals from overseas. Channels of trade and rail communication, had not yet been sufficiently organized to make it practicable to ship grain into these western districts from the surplus-producing districts of the east.

Before the World War, a considerable part of the surplus agricultural products produced in the old Kingdom of Serbia had been shipped south to Turkey, Greece, and the Orient through Istanbul (Constantinople) and Salonika. It is probable for hundreds of years, dating back to the rise of the Roman Empire, the territory now constituting Italy had drawn part of its food supply from Illyria, the territory east of the Adriatic.

With the coming of the Slavs and the Turks, this ancient trade had been disrupted, but as Rome is a natural market for the surplus production of the western part of the Balkan Peninsula, during a few years preceding the World War there had been a growing trade between Serbia and the cities of Italy. The bulk of all products, not only those of Serbia but of all of this south country, had been handled by Austrian, Hungarian, and German intermediaries. These southern-grown products lost their identity in Vienna, Budapest, or Berlin and appeared upon the markets of western Europe under trade names usually dissociated from the locality of their origin.

It was obvious from the first that the successful development of the new Kingdom of Yugoslavia depended upon elimination of Vienna and Budapest, as far as possible, from their former status as intermediaries. In practice, however, it has been difficult to establish direct relationships with customer countries. One of the first steps in this direction was made by obtaining from Greece the free use of the port of Salonika to facilitate trade with the Orient. In recent years the city of Zagreb has developed into the commercial nucleus of the southern Slavic countries, and foreign buyers from central and western Europe are establishing agencies at this center. Nevertheless, in 1924, the exports of Yugoslavia to Hungary, Austria, and Germany amounted to 36.4 per cent of the total international trade of the Kingdom. Nearly 29 per cent went to Italy, with which country Yugoslavia has been steadily developing trade relationships up to 1926.

In spite of the difficulties to be overcome, Yugoslavia succeeded in establishing a favorable trade balance in 1924, the value of exports

reaching 671,271,951 gold dinars or \$129,555,487⁶⁵ exceeding imports by about 16 per cent. The following year exports reached 783,349,517 gold dinars or \$151,186,457⁶⁶ and exceeded imports by the narrow margin of 1.8 per cent.

This was possible because Yugoslavia is one of the richest countries of Europe in natural resources of timber, minerals, water power, and agricultural lands. But its industries,⁶⁶ including agriculture, are undeveloped and primitive. The industries of Yugoslavia have suffered on account of heavy taxation and the difficulties of financing local enterprises. The rates of interest charged by Yugoslavian banks are very high (25 to 30 per cent is usual), and even higher rates are paid from time to time. The development of industry has thus been slow but, on the other hand, most of the population produce their own food. This has been fortunate for the country during the formative period just passed through and is in sharp contrast with the situation in Austria where an excessive proportion of city and industrial population has demanded the costly importation of bread and meat with disastrous effect upon the international trade balance.

LOCATION AND EXTENT

The Kingdom of Yugoslavia lies in the western part of the Balkan Peninsula. It is bounded on the north by Austria and Hungary, on the east by Rumania and Bulgaria, on the south by Greece and Albania, and on the west by Italy and the Adriatic Sea. The total area is 96,134 square miles, or approximately as large as the State of Oregon. Its capital, Belgrade, located near the forty-fifth parallel of north latitude, is approximately the same distance from the Equator as St. Paul, Minn.

PHYSICAL CONDITIONS

Yugoslavia, cut by six mountain complexes, is a mountainous country with an average elevation of 300 meters (984 feet). Low-lying plains are found in the valleys of the Danube and its tributaries in the northeastern part of the Kingdom. These, together with river valleys and plains in other parts of the Kingdom, comprise some 60,000 square kilometers (23,166 square miles), or about 24 per cent of the total area.

Slovenia (Carniola) lies in the upper valleys of the Sava and the Drava Rivers and the mountainous regions between the headwaters of these rivers—the so-called Stony Alps. This is a heavily wooded district, 42.64 per cent of the total area being covered by forests. Mining and lumbering are important industries. Field-crop production is confined to the valleys, 19.7 per cent of the total area of Slovenia having been under plow. There are numerous parks and pastures in the forested hills as well as meadow lands in the valleys, 12.58 per cent of the total area being classified as pasture lands and 16.02 per cent as meadows in 1922. Rainfall is more plentiful in these upper valleys than in the lower Sava regions so that this dis-

⁶⁵ One gold dinar is equivalent to 10.3 cents.

⁶⁶ As a result of the long Turkish domination, followed by wars and internal difficulties, industry has been but little developed in Serbia and Bosnia. Croatia and Slavonia, Slovenia and Vojvodina are better endowed with factories, but here, too, a shortage of fuel and the competition of other parts of the former Austro-Hungarian Empire have restricted development. Apart from agricultural and similar manufactures, manufactured goods in 1923 amounted to only 4 per cent of the total exports. (5, p. 114).

trict is better adapted to livestock production than any other in Yugoslavia.

In Dalmatia and western Croatia the mountains rise abruptly from the sea, which renders rail communication with the rest of Yugoslavia extremely difficult. The climate in the southern part of this district is subtropical, and olive production is a leading industry. Tobacco is also grown extensively, but the mountain slopes can be utilized for little but sheep and goat herding. A large part of the population is supported by fishing along the coasts. Only 9.9 per cent of the area of Dalmatia was classified as plowland in 1922, as contrasted with 27.3 per cent forests, 45.1 per cent pastures, and only 0.7 per cent meadows. The mountains are of limestone formation, consequently there is a lack of ground water near the surface. A greater percentage of the total area is classified as pastures in Dalmatia than is true in any other district of Yugoslavia, but the quality of these grazing lands is extremely poor. There are practically no meadows in this region and the livestock industry is at a very low level. Cultivated fields are small and are often terraced upon a steep hillside. The status of agriculture and of the farmer is lower in Dalmatia than in any other part of the Kingdom of Yugoslavia.

The limestone mountains of Dalmatia, which extend into Herzegovina and northern Montenegro and which are for the most part stony, waterless, unproductive wastes, constitute the first of three ranges of the Dinaric Alps. These ranges running in a northwest to southeast direction traverse Croatia and Bosnia, and parts of Serbia, south Serbia, Herzegovina, and Montenegro.

Crop lands in Montenegro, lying almost wholly in the valley extending north from Lake Scutari (Skadar), constitute only 2.9 per cent of the total area of the District whereas 19.93 per cent of the total area was classified as forests in 1922 as compared with 1 per cent pastures and 2.2 per cent as meadows. Fully 71 per cent was unproductive.

There are many isolated fertile basins in the central range of the Dinaric Alps in which are found most of the population of Bosnia. There are no long, contiguous valleys, and for that reason communication between the different settled areas is very difficult. The third range slopes toward the Sava Valley, and the country lying to the northeast is made up of rolling plains and broad valleys of great fertility, which gradually descend to the northeast and merge into the great plain of Hungary.

A little less than half of Bosnia-Herzegovina (49.7 per cent) was forested in 1922 as contrasted with 24.9 per cent crop lands. The crop lands for the most part lie in the northeastern part in the watershed of the Sava River. About 8.2 per cent of the total area was in meadows in 1922 and 14.3 per cent pastures. A greater percentage of the land of Bosnia-Herzegovina was classified as pasture than in any other district of Yugoslavia except Dalmatia. Animal industry in these regions is one of the most important branches of agriculture.

In the western part of south Serbia, are found the Pindaric Mountains, which stretch along in narrow, heavily wooded ranges toward the Albanian frontier. This District, including Serbian Macedonia, is penetrated from the east by the Rhodope Ranges, that also form the highlands of southwest Bulgaria. Fully 23.5 per cent of the total

area of south Serbia was under forests in 1922 as compared with 12.3 per cent under plow, 1.9 per cent meadows, and 3 per cent pastures.

In southern Serbia there are broad plains well suited to the cultivation of cereals, whereas in the hill country large areas are adapted to the production of tobacco. The Rhodope and Dinaric Ranges are separated by the broad, fertile valleys of the Morava and Vardar Rivers. These constitute the heart of the surplus cereal regions of south Serbia and the old Kingdom of Serbia. The plateaus and rolling hills are covered with forests and dotted with orchards. Extensive meadows and pastures supply grazing facilities for relatively large numbers of livestock. Rainfall fluctuates widely, the annual precipitation at Skopljë averaging 19 inches, at Bitolj 28.3 inches, and at Belgrade 24.3 inches.

The Danube River has forced a passage through the Transylvanian Alps called the "Iron Gate." From this point southward these mountains form the eastern frontier of Yugoslavia until they meet the Balkan Ranges, which extend with an east-to-west trend from the Black Sea through Bulgaria into the old Kingdom of Serbia.

There was 24.15 per cent of the total area of the old Kingdom of Serbia classified as plowland in 1922 as contrasted with 20.35 per cent forests, 5.2 per cent meadows, and 4 per cent pastures. Before the World War the old Kingdom of Serbia was a surplus-producing region of growing importance, which exported appreciable quantities of most farm products to the southeast to Turkey and Greece or to the northwest to central Europe.

The region of greatest surplus production in Yugoslavia is Voivodina in the northeastern corner of the Kingdom in the valleys of the Danube and the Tisza (Theiss). In 1922, nearly 69.8 per cent of the total area of Voivodina was classified as plowland, whereas only 12.72 per cent was under forests, 2.9 per cent meadows and 9.6 per cent pastures.

The western portion of Croatia lies in the ranges of the Dinaric Alps. Toward the east, in Slavonia, the country slopes to the Danube River. There is thus great variety in the topography and in the agriculture. Taking the district of Croatia-Slavonia as a whole, 33.9 per cent was classified as plowland in 1922. There was 34.03 per cent under forests, 10.3 per cent meadows and 13.4 per cent pastures.

Most of the southern part of the old Kingdom of Serbia, south Serbia, central Bosnia, central Croatia-Slavonia, and Slovenia (Carniola) are more or less independent as regards food supplies, since they produce enough cereals and animal products in good years to meet their own requirements.

Western Croatia, Dalmatia, Herzegovina, and Montenegro are deficient in field-crop production and their local output has to be supplemented by shipments of foodstuffs from other parts of the Kingdom or from abroad.

The northern part of the old Kingdom of Serbia, northwestern Bosnia, eastern Croatia-Slavonia, and all of Voivodina constitute the great agricultural surplus, producing region of Yugoslavia.

UTILIZATION OF THE LAND

The records of the way in which land was utilized in different parts of Yugoslavia differ greatly. There are practically no Turkish records covering pre-war conditions in south Serbia, and in other

districts many details are obscure. The pre-war data given in Table 91 is, therefore, only approximately correct. Peasant agriculture predominated in the greater part of the Kingdom, but in the north estate farming played an important rôle. For this reason, in many respects the agricultural situation in Yugoslavia has been similar to that of other southern countries, in which a land reform has been put into effect. Thus, although the total acreage of cereals has decreased, there has been an increase in the acreage under corn, making greater supplies of feed available to the peasants' hogs and for exportation. As indicated in Table 91, there has also been the usual increase in meadows and pastures, providing greater grazing facilities for the peasants' cattle and sheep.

TABLE 91.—Utilization of land in Yugoslavia, before the war compared with 1920 and 1925

[In thousand acres—1. e., 000 omitted]			
Item	Pre-war	1920	1925
Plowland:			
Cereals.....	12,623	10,822	12,240
Leguminous plants.....	170	204	229
Industrial plants.....	109	198	201
Roots and tubers.....	408	599	647
Vegetables.....	208	553	514
Forage plants.....	715	553	514
Fallow.....	1,547	2,339	737
Total.....	15,960	14,715	14,868
Meadows:			
Pastures.....	3,868	3,732	4,054
Vineyards.....	6,468	6,322	6,817
Orchards and gardens.....	532	428	440
Forests.....	927	533	480
Reeds.....	19,037	18,988	18,224
Unproductive land and marshes.....	143	176	165
Grand total.....	14,545	16,586	16,068
Grand total.....	61,480	61,480	61,401

Pre-war and 1920 (22, p. 81).

1925 from consular report of K. S. Patton, Oct. 25, 1926.

† Figures for total area as revised by the Ministry of Agriculture.

POPULATION

It is estimated that 84.23 per cent of the total population of the old Kingdom of Serbia was occupied before the World War, in tillage of the soil and in herding cattle and sheep. Conditions in other parts of the new Kingdom were similar; only a very small percentage of the population lived in cities. There are only 19 cities of more than 5,000 inhabitants in Yugoslavia. The largest of these, the capital city of Belgrade, had a population of about 111,740 in 1921. In that year, the total population of the Kingdom was placed at 12,017,323 and of this number only 1,006,964 lived in towns of more than 10,000 inhabitants. Outside of these towns, the predominating occupation of the south Slavs is agriculture.

The original home of the Serbs, Croats, Slavonians, and Slovenes was in Galicia (now part of Poland). Toward the middle of the sixth century clans of these Slavic peoples began to cross the Carpathians and settle on the great plain between the Danube and the Tisza (Theiss), the Alföld of present Hungary. The Slovenes drifted into the highlands west of the Danube and into the foothills of the Alps south of the territories occupied by the Czechs and the Slovaks, and

penetrated as far west as the site of present-day Trieste. This country was occupied by Celts who had been driven south by the Germans who, in turn, had been driven south by the Czechs. The Slovenes are thus intermixed with the aboriginal Celts to a greater degree than are the Croats, whereas the Serbs are the purest in Slavic blood. The Croats, followed by the Slavonians, moved in south of the Slovenes, settling between the Drava and Sava Rivers, and west in the northern part of Dalmatia of to-day. The Serbs, numerically the most powerful, occupied the valley of the Danube and the country to the south between the Adriatic and the Aegean Seas.

With the coming of the Magyars in the tenth century the south Slavs were crowded to the southern limits of present-day Hungary. The Slovenes fell under the domination of the Germans in the ninth century and the Croats and Slavonians were forced to enter into a union with the Magyars two centuries later. The Serbs maintained their independence until the battle of Kossovo in 1389, when they came under Turkish domination.

The south Slavs, although related by ties of blood and race characteristics, differ considerably in their adaptability to agriculture. None of these races compare favorably with the Germans or with the Czechs as tillers of the soil. The Slovenes have been under German tutelage for a thousand years, yet they do not possess the technical training to make them good farmers. The lack of the ordinary learning of the common school has left their thought processes so undeveloped that they cling tenaciously to the farming customs of their ancestors (21, p. 251). The Croats and Slavonians made greater progress in farming under the Hungarians than did the Slovenes under the Austrian-Germans. The Serbs were the latest arrivals in the Balkan Peninsula, and the latest to settle down to field cultivation, so that the Serb, although said to be the best fighting man in Europe, leaves much to be desired as a tiller of the soil.

LAND TENURE

The old Kingdom of Serbia is a land of small peasant farms. More than 96.3 per cent of the land holdings in 1897 had a combined area of less than 49.5 acres each. Only 0.059 per cent of the holdings comprised over 247.1 acres. (Table 92.)

TABLE 92.—Size of land holdings in the old Kingdom of Serbia, 1897 (41, p. 5)

Area		Properties	
Hectares ¹	Acres	Total	Percentage of total
Less than 3.....	Less than 7.4.....	Number	Per cent
3 to 5.....	7.4 to 12.4.....	58,253	33.479
5 to 10.....	12.4 to 24.7.....	62,620	21.337
10 to 20.....	24.7 to 49.4.....	80,822	27.540
20 to 60.....	49.4 to 145.3.....	40,780	13.906
60 to 100.....	145.3 to 247.1.....	10,277	3.502
100 to 300.....	247.1 to 741.3.....	550	.187
300 and over.....	741.3 and over.....	190	.055
Total.....		12	.004
Total.....		293,474	100.00

¹ 1 hectare=2.471 acres.

Conditions in Montenegro were similar. In south Serbia, the peasants were reduced to a condition even below that of the serfs of Bosnia-Herzegovina, where the feudal system of land tenure prevailed up to the time of the formation of Yugoslavia. Bondage to the soil was hereditary and it was practically impossible for any individual to escape from its conditions. The serf was obliged to pay to his "beg" or feudal lord a third, a fourth, or a fifth of his crops. In addition, he was compelled to render personal services and dues. The peasants are Christians; whereas nearly 90 per cent of the former feudal lords were Moslems, though of Serbian blood. Under such conditions it was impossible to establish farming on a rational basis.

THE LAND REFORM

Farms in the old Kingdom of Serbia were almost exclusively of the small peasant type. Most of those that comprised 100 hectares (247.1 acres) or more belonged to peasant family cooperatives. There were no feudal institutions in Montenegro, but the infertility of the soil had created a large class of poor peasants, who possessed most of the arable fields. Feudalism had been abolished in south Serbia and Macedonia but had been replaced by the "serfdom of personal relations," in which the peasant had to bargain with his overlord for the right to till a piece of land. This practice was subject to greater abuse than the old system.

In Bosnia-Herzegovina the feudal system was continued when the country came under Austrian control, but the great lords were listed as proprietors of the land. Later the serfs were given the privilege of buying themselves free after coming to an agreement with the proprietor. The peasants had to pay the redemption price themselves.

In Dalmatia a most complicated mixture of systems prevailed. The mediaeval institutions of Serbian and Croatian origin were entangled with the agrarian system of Turkish feudalism and the institutions of the ancient Venetian Republic. In all of the Districts south of the Danube and Sava Rivers peasant types of farming had been the rule for centuries so that the land reform consisted simply in a change in the title to the land without affecting the manner in which the land was cultivated. The peasants of south Serbia and Macedonia, realizing the strength of their new position after the formation of the Kingdom of Yugoslavia, refused longer to pay dues and retained as their own the plots of land that they had formerly worked in subjection to their landlords under the Turkish régime.

Before the World War, about a third of the plowlands of Bosnia-Herzegovina were held by feudal tenure. On July 21, 1919, the Government directed the registration of the serfs in the "land book." On May 19, 1921, the sum of 255,000,000 dinars (\$49,215,000 according to normal par exchange)⁶⁷ was set aside for the compensation of the feudal lords. This involved 1,915,600 acres of land which were transferred to 111,000 households comprising 650,000 persons who had been freed from serfdom.

Aside from these hereditary serfs or bondmen, there were bondmen of another kind under the old régime, who held land from the lords under contract. About 546,000 acres were so held. These quasiserfs were also freed, and, if they were bound by contracts running only 10 years, were permitted to buy directly the lands they had previously

cultivated. In other cases, in which the contracts ran for 40 years or more, the State bought the lands on behalf of the peasants.

None of these changes in title to the land affected agricultural production to any appreciable extent, since practically all of the acreage involved had been previously tilled by the present owners, according to traditional peasant methods.

In Slovenia (Carniola) also the land reform was without appreciable effect upon production. Under the Austrian régime there were 230 large estates aggregating about 469,500 acres, of which about 89 per cent was forest and waste land, 5 per cent meadows, and only 6 per cent cultivated land. These lands had been leased for the most part to peasant cultivators and for this reason little or no change in farm methods followed when the peasants obtained final possession.

In Voivodina, 1,147 large estates, totaling 956,000 acres, were subject to the land reform. Of these, 242,000 acres were distributed among farmers and 50,000 acres to those who had volunteered in the Serbian Army during the Balkan and World Wars. The owners of these estates were extensive breeders of horses and consequently required large quantities of oats. The small farmers produced swine and therefore grew corn. The redistribution of the estates in this district is reflected in a decrease in the areas under wheat and oats and an increase in the corn acreage.

There were 363 large estates totaling 609,000 acres in Croatia and Slavonia that came within the scope of the land reform. In the beginning of 1921, about 215,000 acres were distributed among peasants and 33,000 acres were allotted to ex-service men who had volunteered to serve against the Central Powers. Here, also, there has been a slight trend toward increased corn production. On the other hand, regions like south Serbia, Bosnia, and Montenegro, that formerly received a considerable portion of their bread cereals from the surplus-producing regions of the north were cut off from these sources of supply during and after the World War. There has been a tendency on the part of the inhabitants of these deficit production regions to make themselves more nearly independent of their former sources of supply. These attempts at self-sufficiency have resulted in increasing the total acreage under wheat in Yugoslavia at the expense of rye as indicated in Table 93.

TABLE 93.—Cereals, potatoes, and sugar beets: Acreage, production, and yield per acre in Yugoslavia, average 1909-1913, and annual, 1926

Crop	Average 1909-1913 ¹			1926		
	Acreage	Production	Yield per acre	Acreage	Production	Yield per acre
Bread cereals:		1,000 bushels		1,000 bushels	1,000 bushels	
Wheat.....	4,000	67,739	16.9	4,178	71,428	17.1
Rye.....	718	11,983	16.7	500	7,454	14.9
Total.....	4,728	79,742	16.9	4,678	78,882	16.9
Brewing and fodder cereals:						
Barley.....	1,247	22,601	18.1	867	17,275	19.9
Oats.....	1,381	35,528	25.7	871	24,645	28.3
Corn.....	4,773	116,108	24.3	4,929	134,251	27.2
Total 5 chief cereals.....	12,129	253,979	20.9	11,345	255,053	22.5
Potatoes.....	435	46,968	108.1	548	54,539	63.0
Sugar beets.....	35	1,000 short tons	31	86	1,000 short tons	652
			10.9			652

¹ 1909-1911 average, for the old Kingdom of Serbia and south Serbia; 1911-1913 average, for Bosnia and Herzegovina. See Table 96, notes 2 and 10.

⁶⁷ Par value of the dinar was 19.3 cents; but in July, 1921, had fallen to 2.56 cents.

In Croatia-Slavonia the large estates were chiefly devoted to extensive cereal production, whereas the great majority of farm animals were found on the small holdings. Taking into consideration only the livestock in the possession of landowners, the peasants owning 71.1 acres or less in 1911, as indicated in Table 94, owned 94.1 per cent of the cattle on farms, 93.5 per cent of the horses, 92.5 per cent of the swine, and 90.5 per cent of the sheep in these districts.

TABLE 94.—Livestock: Number in Croatia-Slavonia, by size of land holdings, 1911 (15, 1912, p. 132)

Size		Cattle		Horses		Swine		
Arpents ¹	Acres	Owners of livestock	Number	Per cent	Number	Per cent	Number	Per cent
On farms:								
Less than 1.....	Less than 1.4....	8,081	7,057	0.6	2,250	0.7	11,709	1.1
1 to 5.....	1.4 to 7.1.....	129,846	236,016	21.4	20,205	11.7	188,643	17.4
5 to 10.....	7.1 to 14.2.....	119,073	334,876	30.3	30,535	28.0	267,762	24.8
10 to 20.....	14.2 to 28.4.....	70,780	312,890	28.4	115,994	34.7	317,497	29.3
20 to 30.....	28.4 to 42.6.....	22,011	147,415	13.4	61,483	18.4	215,719	19.9
30 to 100.....	71.1 to 142.2.....	1,894	19,668	1.8	8,560	2.6	35,824	3.3
100 to 200.....	142.2 to 284.4.....	433	5,472	.6	2,536	.8	8,365	.8
200 to 500.....	284.4 to 711.....	258	7,851	.7	2,113	.6	6,795	.6
500 to 1,000.....	711 to 1,422.....	162	10,115	.9	2,981	.9	7,402	.7
1,000 and over.....	1,422 and over.....	137	21,372	1.9	5,417	1.6	22,255	2.1
Total.....		334,675	1,103,832	100.0	334,074	100.0	1,081,943	100.0
Not on farms.....		28,870	31,025		12,382		82,079	
Grand total.....		363,545	1,134,857		346,456		1,164,022	

Size		Owners of livestock	Sheep		Goats		Mules	Donkeys
Arpents	Acres		Number	Per cent	Number	Per cent		
On farms:								
Less than 1.....	Less than 1.4.....	8,081	7,209	0.9	2,516	2.7	174	210
1 to 5.....	1.4 to 7.1.....	129,846	95,311	11.4	27,812	23.3	141	692
5 to 10.....	7.1 to 14.2.....	116,073	173,124	20.7	27,859	29.7	212	1,029
10 to 20.....	14.2 to 28.4.....	70,780	252,229	30.1	26,581	28.4	42	221
20 to 30.....	28.4 to 42.6.....	22,011	229,644	27.4	13,833	14.8	7	419
30 to 100.....	71.1 to 142.2.....	1,894	44,755	5.4	963	1.0	3	170
100 to 200.....	142.2 to 284.4.....	433	10,040	1.2	67	.1	1	36
200 to 500.....	284.4 to 711.....	258	3,364	.4	33	.1	1	44
500 to 1,000.....	711 to 1,422.....	162	5,005	.6	18	.1	2	60
1,000 and over.....	1,422 and over.....	137	16,131	1.9	3	.0	7	73
Total.....		334,675	836,812	100.0	93,715	100.0	899	2,164
Not on farms.....		28,870	13,671		1,883		5	107
Grand total.....		363,545	850,483		95,598		904	2,271

¹ 1 arpent=1.422 acres.

² Less than 0.1 per cent.

It is probable that one of the direct effects of the land reform in Croatia, Slavonia, and Voivodina will be an increase in the number of animals held on farms. It is the natural tendency of the peasant as he obtains more land to increase his livestock to the limit of the rough forage produced. Professor Nedeljkovich, wrote in *Agrarian Reform*, 3, p. 145:

The agrarian reforms in Yugoslavia have been bitterly criticised on many sides. The main criticisms are (1) that the whole reform was carried out without the previous preparation of any systematised plan, without any list of the lands to be expropriated, nor of the families among whom they were to be divided; consequently that expropriation and colonisation were done by guess work; (2) colonisa-

tion was without organisation; the settlers were not provided with lodgings, implements, seed, or food to carry them until the next harvest, very often being cast upon bare land, which was only temporarily granted to them. Further, that the colonists often neglected the land given to them or cultivated it quite irrationally, or finally let it to speculators for a mere song; in every case with the result that production fell off, and social and national purposes were frustrated; (3) both expropriation and colonization were carried out on insufficient bases, and on changing regulations, which gave every opportunity for all kinds of evil influences and corruption.

All these criticisms may be qualified as criticism of detail. In estimating these large social reforms, the movement must be viewed from a distance and in its historic perspective. It was executed in haste, without a previous systematic plan, and not always in the most efficient manner. But all this was inevitable, for circumstances demanded an urgent carrying out at least of the main principle, leaving the details to later laws.

The final effect of the land reform will depend upon the manner in which the different ethnic types of peasants handle the widely divergent soils in the widely varying regions that they occupy.

AGRICULTURAL PRACTICES

If a line is drawn from Zajecar, on the Bulgarian frontier, to the Drina River, thence north to the River Sava and west to Fiume the territories of the south Slavs will be roughly divided into two regions as regards agricultural practices. South of this imaginary line are found most of the old Kingdom of Serbia and all of Bosnia, Herzegovina, Montenegro, and south Serbia. The life of the peasantry of these regions is similar to that of the peasants of Rumania and Bulgaria—that is to say, farming is organized not along commercial lines for financial profit, but to furnish the means of livelihood to the peasant and his family. The production of enough to eat, drink, and wear, and to pay taxes and interest, is the aim of the year-round farm occupation. The production of marketable surpluses is incidental to the satisfaction of the requirements of the household.

As in Bulgaria and Rumania, so in the southern districts of Yugoslavia, the excessive number of holidays has a stagnating influence upon field-crop production, because so many of these days on which no manual labor may be done occur at critical periods of the seeding and harvesting seasons. The philosophy of the peasant is that the harvest does not depend wholly upon his individual efforts; it is, as he says "As Providence wills". Therefore the needs of farming are universally neglected on holidays. The Yugoslav peasant spends perhaps 75 days out of the 365 in actual field work. The remainder of his time is spent in pottering around doing odd jobs, which add to his comfort but which do not add to the productivity of his farm. During the winter he hibernates doing little or nothing that is constructive.

The agriculture of all these regions is of the most primitive peasant type. No regular system of crop rotation is practiced; the land is allowed to lie fallow one or more years after being cropped for a season or two. Animal husbandry has developed but little above the pastoral stage of the time when the southern Slavs were roving clans drifting southward before the invading Magyar hordes. Except in certain valleys of north Serbia, no special effort has been directed toward scientific or even rational breeding and feeding.

Since the formation of Yugoslavia as an independent kingdom interest in agriculture has been aroused in governmental circles. It

is generally recognized that production is far below the potentialities of soil and climate, "barely two-fifths of what it might easily become", according to K. S. Patton, United States consul at Belgrade.

The chief factors associated with underproduction in field crops in southern Yugoslavia to-day are: (1) Poor seed; (2) poor and shallow farming with inadequate cultivation (corn) after seeding; (3) generally no fertilizers; and when used, wrongly chosen and poorly applied; (4) little or no understanding of the significance of crop rotation; and (5) primitive methods and lack of machinery.

The peasant farmer is intelligent, but he lacks imagination and training and is conservative to the point of having reduced his farming operations to certain habits based upon the ancient customs of his forefathers. His methods are usually sufficiently productive to provide for the simple creature comforts essential to the existence of himself and his family. There is little incentive for him to produce more.

Should the peasant produce a surplus there is no immediate market among his neighbors, each of whom farms and lives under conditions similar to his own. Each farm unit is sufficient unto itself. It produces all of the family's food, both vegetable and animal, yields corn and wheat which are ground into meal or flour at a near-by mill, and produces feed for his animals. From these he clips the wool, which the women of the household manufacture into cloth for winter clothing, just as they spin and weave flax for summer wear. He tans his own raw leather from which he makes sandals (opantsi) for himself and his family. Even his wagons and carts are usually made on his own farm, often from his own timber. There is no nonproducer in his village with money to buy his products and no specialist in any particular line of farming who demands the things he produces. If he has a surplus he hauls it to some market town and takes for it whatever the buyer will give.

North of the Danube and the Sava the practices of agriculture, particularly on the large estates of Voivodina, Croatia, and Slavonia, under pre-war conditions, were more nearly modern and were far superior to those ancient customs and habits that actuated the farming in the southern districts. Agricultural machinery was employed to a fair extent, seed was selected and planted in carefully prepared fields.

In Croatia-Slavonia, the native gray cattle brought by the migrating clans from the Russian steppes had been replaced to a large extent by Swiss breeds and, although conditions were not so far advanced, in Voivodina, less than half the cattle were of the gray aboriginal breeds. Mangolica swine had practically superseded the native breeds in these northern regions. Only in the matter of sheep had these northern farmers exhibited conservatism; they clung to the ancient milk sheep which were brought into the country from western Russia, and have not followed the example of the Magyars by breeding Merino sheep from Spain for their fine wool.

FERTILIZERS

The agriculture of each of the districts in Yugoslavia is characterized by the extent to which commercial fertilizers are employed in farming. About 50 per cent of the commercial fertilizers used in Yugoslavia in 1925 were employed in Voivodina. Croatia-Slavonia

utilized 25 per cent and Slovenia 15 per cent. Although there was a hydro-electrolytic nitrogen plant in Dalmatia only about 2 per cent of the cyanamid produced in 1925 was consumed in the country itself whereas 98 per cent was exported or held in reserve. In the south of Yugoslavia, the use of even stable manure is very restricted.

Agricultural production in the south was severely affected by the disrupting influences of the World War; but being of the primitive type, recuperation was rapid. In the north, return to normal has been slower. These were the regions of the large estates which, through the provisions of the land reform, have been divided and reorganized into smaller holdings. Added to the disorganization consequent upon the war, changes in the manner in which former large estate lands are being worked have affected agricultural production, particularly in Croatia-Slavonia, and Voivodina.

COMMUNICATIONS

The surplus-producing districts of Yugoslavia lie in the valleys of the Danube River and of its tributaries, the Sava, the Drava, and the Tisza, which furnish 1,118 miles of river navigation within the Kingdom itself. There are 102 river ports and quays but these are primitive, with no special accommodations for storing goods and no mechanical contrivances for loading or unloading. This river system has a connection down the Danube through the Iron Gate with Braila in Rumania, thence to western Europe, and up the Danube to Budapest, Vienna, and Bavaria, thence to central Europe. On the other hand, there are no special connections between the ports and the local railways. This makes the movement of crops and livestock products more difficult and expensive than in central European countries, with their better organizations and facilities. The movement of goods by rail and water is further complicated by the fact that there is no unity in the railway system itself.

North of the Sava and the Danube Rivers, the former Austrian and Hungarian territories now constituting the Districts of Slovenia, Croatia, Slavonia, and Voivodina are fairly well served by six lines of standard-gauge railways that were parts of the Austro-Hungarian system. There is a trunk line in the west from Vienna to Zagreb, whence two lines run to the Adriatic—one to Trieste and the other to Fiume. A trunk line in the east runs from Budapest through Novisad to Belgrade, thence via Nis in the old Kingdom of Serbia, and Sofija in Bulgaria to Istanbul (Constantinople). From Nis a branch line runs south through south Serbia to Salonika. The two trunk lines are connected by a line running transversely through Croatia-Slavonia from Belgrade to Brod and thence to Zagreb.

There are 3,500 kilometers (2,175 miles) of narrow-gauge (2 feet 6 inches) railway in Bosnia-Herzegovina connecting Brod, Sarajevo, Mostar, Ragusa, Castelino, and Zelenika on the Adriatic in south Dalmatia. This line can handle only 474,000 short tons of shipping between Herzegovina and Dalmatia per year and is inadequate to the needs of the country.

In 1925 another connection with the sea was established by a line linking Grachats and Knin, thus bringing Zagreb in connection with Split (Spalato) and Sibenik (Sebenico). There is great inequality in the distribution of railways. There is 1 mile of railway to 6.8 square miles of territory in Voivodina, 1 mile to 8 square miles in Slovenia

and Croatia-Slavonia, 1 to 20.5 square miles, in Bosnia-Herzegovina 1 to 23.6 square miles in Dalmatia, and 1 to 29.8 square miles in Serbia (north and south) and Montenegro. The mean for the country as a whole is 1 mile for each 14.2 square miles of area.

Slavonia, Voivodina, northeastern Bosnia and the northern part of the old Kingdom of Serbia may be said to be fairly well served with transportation facilities, including rail, waterways, and wagon roads. Slovenia, Croatia, central Bosnia, and the central part of the old Kingdom are not so well provided with transportation. South Bosnia, the southern part of the old Kingdom and south Serbia have little transportation facilities. In the mountainous regions of southwestern Croatia, western Bosnia, Herzegovina, Montenegro, and Dalmatia there are practically no transportation facilities aside from pack animals.

There are 43,625 kilometers (27,107 miles) of roads in Yugoslavia, or 0.3 mile per square mile of territory. There are 6,240 miles in north and south Serbia, 5,963 miles in Croatia-Slavonia, 4,533 miles in Slovenia, 4,325 in Bosnia-Herzegovina (of which 1,472 miles are pack trails), 2,948 miles in Voivodina, 982 miles in Dalmatia (of which 76 miles are pack trails), and 511 miles in Montenegro.

The unsolved problems of transportation in Yugoslavia have a more vital bearing upon the development of the agriculture of the country than, perhaps, in any other of the Danube States. The lack of communicating roads and adequate organized means of transportation results in a relatively high cost of moving goods within the Kingdom and consequently reduces the price receivable by the producer.

SELLING FARM PRODUCTS

On account of the small size of peasant farms and the fact that most products are consumed at home, no large surpluses of farm products of uniform quality are available for purchase in most parts of Yugoslavia. As a rule, lots offered for sale are very small and, although there is a general similarity in the kind of grain, wool, swine, plums, etc., grown in any one district, the products of individual peasants vary considerably in quality.

According to an investigation conducted by Mihailo Avramovitch, the father of the Serbian cooperative movement, the quantity of surplus marketed varied greatly according to the size of the land holding. (Table 95.)

TABLE 95.—Farm production by peasants: Percentage consumed at home and sold, classified by size of holding (3, p. 189)

Size of holding		Percentage of production	
Hectares ¹	Acres	Consumed at home	Sold
		Per cent	Per cent
Less than 1	Less than 2.5	88.0	11.0
1 to 2	2.5 to 4.9	81.0	19.0
2 to 5	4.9 to 12.4	80.0	20.0
5 to 10	12.4 to 24.7	79.0	21.0
10 to 15	24.7 to 37.1	78.0	22.0
15 to 30	37.1 to 74.1	74.0	26.0
30 to 50	74.1 to 123.6	68.5	31.5
50 to 70	123.6 to 173.0	59.0	41.0

¹ 1 hectare = 2.471 acres.

Before the World War, commercial quantities of agricultural products were usually assembled by agents of some bank or trading concern, who were located at market towns, from which their spheres of activity extended into adjacent territories. Sometimes these purchasing agents were in the employ of an export organization but as a rule it was the custom of Austrian, Hungarian, and German importers to send their buyers into those districts, in which were produced the particular grades of products suited to the requirements of their patrons. This meant bargaining with individual peasants, who had brought a few bushels of grain, a few pounds of prunes, wool, or silk cocoons, or perhaps a homemade rug to the market place.

Although somewhat modified, much the same system of purchase that was in vogue before the World War persists to-day.

AGRICULTURAL COOPERATIVE SOCIETIES

The traditional family organization of the south Serbs was along cooperative lines, and for that reason the cooperative movement has had marked success in Yugoslavia. It is estimated that before the World War there were, in the territories now comprising Yugoslavia, 3,890 Slav cooperative societies with 447,060 members, 390 Hungarian societies with 113,000 members, and 130 German societies with 52,000 members. These societies are of various kinds including societies for credit facilities, mutual help, consumers' societies, societies for the sale of agricultural products, wine-growers' societies, etc. It is customary for the local cooperatives to combine into district and provincial unions, through which the membership sells a large part of farm surpluses of its constituents and purchases a large part of all the commodities required by the member farmers.

The leading cooperative unions of Yugoslavia have pooled their interests and have formed the Central Federation of Cooperative Unions. These unions purchase goods with their individual resources and on the collective responsibility of their members. None are guaranteed or supported by the Government as the whole movement has developed without State aid. Products are assembled and graded for sale but, as yet, the movement has not developed enough to be an appreciable factor in export trade.

There were 22 unions in Yugoslavia in 1922 combining 4,862 cooperatives, with a total membership of 784,443. Of these cooperatives, 2,649 or 55 per cent were credit organizations, whereas 2,213 or 45 per cent performed various functions of buying, selling, manufacturing, and producing. Transactions in goods in 1922 comprised 8,168 carloads⁶⁸ of agricultural necessities and foodstuffs, 112,661 machines, 1,220,000 implements, 1,750 cases of various goods, 64,050 meters (70,045 yards) of textiles, and 19,876 pairs of shoes. The agricultural necessities were as follows: Wheat, 1,552 carloads; seed, 24 carloads; cattle fodder, 526 carloads; commercial fertilizers, 401 carloads; copper sulphate and other substances, 345 carloads; foodstuffs, 1,696 carloads; groceries, 842 carloads; and wicker goods and wood, 2,782 carloads.

As stated by Ljudevit Prohaska (3, p. 176): The above "figures relate to the position of the cooperative movement in 1922, and are

⁶⁸ One carload is 10 metric tons, or 22,046 pounds.

based on the statistical data from the cooperatives for 1921." Based on Prohaska's statement, it appears that out of a total number of 4,862 cooperatives, reports were received from 3,656. The total number of members amounted to about 784,443; which is 6.53 per cent of the total inhabitants. Hence, the cooperatives comprise 3,922,215 persons or 32.64 per cent of the population, reckoning a member's family as five persons.

The total capital amounted to 31,640,000 dinars⁶⁹ [or \$588,504]; deposits, 365,685,000 [\$6,801,741]; loans to members, 195,970,000 [\$3,645,042]; shares in unions, 105,129,000 [\$1,955,399]; credits to cooperatives given by the union, 85,212,000 [\$1,584,943]; management expenses, 13,950,000 [\$259,470]. The total turnover was 4,029,027,000 dinars [\$74,939,902].

The cooperatives average 161 members, and one cooperative exists for each 2,472 inhabitants.

FARM IMPLEMENTS AS WAR REPARATIONS

In July, 1927, it was reported that the Ministry of Agriculture and Waters had transmitted to the Ministry of Foreign Affairs a list of various agricultural tools, implements, and machinery which were to be delivered by Germany to the Kingdom of Yugoslavia on account of war reparations. This list includes sprayers, presses, filterers, etc., for use in vineyards, plows, planters, cultivators, harvesting machines, threshers, etc. Most of these implements will be distributed in the old Kingdom of Serbia. Their use will be restricted to large fields, both private and those worked in common. Most of the fields in the old Kingdom are too small to carry the overhead of an equipment of farm implements or even to admit of their use. The practical application of farm machinery to agriculture on an extensive scale can not be accomplished without the consolidation of tiny holdings into fields of larger size. As in most countries, in southeastern Europe the difficulties to be overcome before this can be done are almost insurmountable.

STATUS OF FIELD CROPS AND LIVESTOCK

The destruction of livestock during the World War in the old Kingdom of Serbia, was tremendous and the depletion of the numbers of domestic animals in each of the other Districts occupied by the South Slavs was very great. Nevertheless the census of 1921 does not show an inordinate decrease when compared with pre-war estimates. In 1922 and in 1923 there were serious droughts, which forced a large exportation especially of meat and meat preparations. In spite of the fact that very considerable reparations in kind have been paid by Germany, Hungary, and Bulgaria to Yugoslavia, and that these animals have been employed in building up the flocks and herds of the country, the enumeration of 1925 shows the numbers of horses employed in agriculture to be 93.9 per cent of the pre-war estimate for total horses; cattle employed as work animals, 74.3 per cent of the pre-war estimate for total cattle; swine found only on farms, 71.4 per cent of total pre-war number of swine; sheep, 75.3 per cent and goats, 62 per cent. The post-war numbers reported do not represent the total numbers of domestic animals in Yugoslavia. There are considerably greater numbers in the Kingdom than have

⁶⁹The average value of the dinar during the last 6 months of 1921 was equivalent to 1.86 cents.

been reported so that the status of livestock in 1925 was better than indicated by these percentages.

The acreages of rye, barley, and oats were below the pre-war average in 1925, whereas the areas under wheat and corn were above. The total area devoted to these five cereals was 11,836,000 acres as compared with 12,129,000 acres or only 2.4 per cent below the pre-war status.

Of this area, 4,875,000 acres were under bread cereals in 1925 as compared with 4,728,000 acres before the World War—an increase of 147,000 acres. There was also an increase in corn acreage from 4,773,000 acres to 5,222,000 in 1925. The increase in the acreage of wheat took place chiefly in those districts of Bosnia and western Croatia that had suffered from want of bread during the World War. The increases in corn were for the most part in the districts of the northeast that were affected by the land reform. On the other hand, areas seeded to oats and barley showed a general tendency to decrease.

It is probable that after the changes associated with the postwar adjustment of frontiers, the rearrangement of market centers, the land reform, and other postwar disturbing factors have run their course, the peasants of Yugoslavia will readjust themselves to the new order of things and will settle down to a routine of farming similar to that followed before the war.

It is probable that in regards to areas of field crops, future operations will fluctuate about the acreages indicated by the crop reports of 1925 and 1926. Livestock numbers will tend to increase at least to the 1921 levels and with the exception of sheep will probably exceed the pre-war levels, particularly in Croatia-Slavonia and in Voivodina.

CEREALS

WHEAT

Before the World War the old Kingdom of Serbia exported as grain and flour 35.3 per cent of its net wheat production up the Danube to Germany (Bavaria) and Austria-Hungary, south by rail to Turkey (probably to south Serbia as well as to Istanbul), and east down the Danube to Rumania (probably for reshipment to western European points). The District of Voivodina is estimated to have shipped to northern points within the Austro-Hungarian Empire 69.6 per cent of its net production, a large part of which was first ground into flour by the local mills. Eastern Slavonia between the Sava and the Danube Rivers was a region of wheat surplus; but its surplus was more than offset by deficits of the western districts and Croatia. Similarly, the northeastern districts of Bosnia shipped wheat up the Danube, whereas the western districts and Herzegovina imported wheat flour from Budapest. South Serbia, Montenegro, Dalmatia, and Slovenia were regions of deficit wheat production.

The rate at which wheat was consumed by local populations before the World War varied greatly in different parts of the Kingdom. The mountaineers of Montenegro eat less wheat than do any of the other southern Slavs, averaging 1.65 bushels per capita each year, as contrasted with 5.14 bushels per capita in the surplus wheat-producing District of Voivodina.

As shown in Table 96, the total annual pre-war area under wheat in Yugoslavia averaged 4,010,000 acres producing 67,759,000 bushels of wheat. Seed requirements averaged 11,879,000 bushels and sta-

istical disappearance has been estimated at 44,094,000 bushels annually, leaving 11,786,000 bushels as the approximate surplus available for export each year.

TABLE 96.—Wheat: Statistical balance of Yugoslavia, pre-war average, and annual, 1921-22 to 1926-27

District	Years	Popula- tion ¹	Acre- age	Seed	Production		Disappearance	Surplus (+) or deficit (-)
					Gross	Net		
Pre-war period:								
Old Kingdom of Serbia		Number	1,000	1,000	1,000	1,000	1,000	1,000
1909-1911		2,911,701	944	13,000	14,746	11,737	2,611	+4,142
South Serbia	1909-1911	1,664,807	390	1,201	6,000	4,880	6,360	+1,471
Montenegro	1909-1913	228,422	12	138	151	113	394	+281
Bosnia-Herzegovina	1911-1913	1,331,592	262	779	3,217	2,478	4,963	+2,485
Dalmatia	1909-1913	1,631,610	74	236	992	756	1,547	-791
Croatia, Slavonia, Međimurje, Kika, and Kaptan	1909-1913	2,731,738	833	2,366	13,516	11,150	13,358	+2,208
Slovenia and Prekmurje	1909-1913	1,063,767	139	395	2,118	1,763	2,734	+971
Vojvodina	1909-1913	1,352,844	1,344	3,817	26,790	22,883	6,954	+13,929
Ceded by Bulgaria	1909-1912	172,413	12	38	149	111	180	-78
Total		12,599,105	4,010	11,879	67,759	53,880	44,094	+11,786
Post-war period								
1921-22		12,017,323	3,029	10,949	40,860	37,427	3,111	+3,433
1922-23		12,176,900	3,073	10,872	44,472	33,660	3,457	+1,443
1923-24		12,334,000	3,842	11,372	61,098	49,699	4,979	+6,717
1924-25		12,462,000	4,244	12,922	67,770	55,209	5,112	+7,096
1925-26		12,650,000	4,382	12,971	78,646	65,675	5,456	+7,219
Average, 1921-1925		12,334,000	3,968	11,745	58,753	47,098	42,086	+3,41
1926-27		12,808,000	4,173	12,367	71,428	56,061		

¹ Pre-war population is for 1910. 1910 and 1921 (47). 1924 (17, 1924-25). 1922, 1923, 1925, and 1926, estimated.

² Acreage and production (17, 1926-1911). Engaged in Balkan War in 1912-13.

³ 1.87 bushels per acre, same as Bulgaria.

⁴ Net exports for calendar years (17, 1909-1921).

⁵ Acreage and production estimated by taking the same percentage of old Kingdom as acreage harvested during 1921 and 1922.

⁶ 3.08 bushels per acre, midway between Bulgaria and Bosnia-Herzegovina.

⁷ Midway between Bulgaria, 1912 boundaries (5.07) and Bosnia-Herzegovina as acreage harvested during 1921 and 1922.

⁸ Acreage and production, estimated by taking the same percentage of Bosnia-Herzegovina as acreage harvested during 1921 and 1922.

⁹ Imports for 1913 reported in (16, p. 85).

¹⁰ Acreage, production, and seed (27, 1921, pp. 58-60). Data not available for 1909-10.

¹¹ Average 1911-1913, net import of wheat and wheat flour. 1911 and 1912 (5, Jahrg. 14-15); 1913 (16, p. 50).

¹² Acreage and production (1).

¹³ Population for Dalmatia including Zara 645,000, from (27, 1921, p. 60). Population of Zara, 14,006 (1).

¹⁴ Acreage and production for Croatia-Slavonia (16). Međimurje, calculated from same source, area

and production being proportional to that of total area of Zala. Kika and Kaptan being proportional to

total area of coast land. Coast-land area and production given in (27, 1921, p. 65).

¹⁵ 2.84 bushels per acre, as estimated by the Royal Hungarian Ministry of Agriculture for Croatia-Sla-

via (28, p. 15).

¹⁶ At same rate as estimated for Croatia-Slavonia, by Royal Hungarian Ministry of Agriculture (28, p. 15).

¹⁷ Acreage and production for Slovenia calculated from (1). Prekmurje, calculated from (16).

¹⁸ Acreage and production calculated from data in (16, 1924, 17-21), according to areas indicated in (47).

¹⁹ 2.84 bushels per acre as estimated by the Royal Hungarian Ministry of Agriculture (28, p. 15).

²⁰ At same rate as in (27, p. 15).

²¹ Calculated from (9, 1909-1913).

²² Calculated from (9, 1909-1913).

²³ At same rate as old Kingdom of Serbia.

²⁴ Acreage and production, 1921 to 1926, from official records of U. S. Department of Agriculture, Bureau of Agricultural Economics.

²⁵ 2.90 bushels per acre, used 1921 to 1926, as indicated in pre-war average.

²⁶ Exports of wheat and wheat flour for years beginning Aug. 1 (17, 1924-1927). Imports not stated for

years beginning Aug. 1, estimated by taking averages of calendar years, indicated in Table 97.

The territories of the old Kingdom of Serbia, south Serbia, and Montenegro were the sites of actual war operations, and were badly devastated by the forces of the Central Powers between 1914 and 1918. The presence of these forces in other Districts greatly reduced

the food supplies of the native populations, large numbers of whom were often at the verge of starvation.

During 1921, although the consumption of wheat in Yugoslavia was considerably below the pre-war normal, supplies in most parts of the Kingdom were more nearly sufficient to meet the food requirements of the people than had been the case when the country was actually engaged in the operations of war. Particularly is this true in the cases of the old Kingdom of Serbia, Macedonia, and Montenegro. This also applies to certain of those Districts, which normally did not produce sufficient wheat to supply their local needs and, which were cut off from their customary sources of bread supply during the World War as, for example, Herzegovina and parts of Bosnia. Seeding in 1921 had approached within 311,000 acres the average wheat area of 1909-1913, but the spring was exceptionally dry, a shortage of food was foreseen, and, since exportation from the northwestern Districts during the first three months of the year had been brisk, a decree was issued on April 11 prohibiting the exportation of all cereals, hay, and straw. This decree continued in force until the fall of 1922.

Acreage decreased in 1922 but from then on increased until in 1924, when the pre-war average was exceeded. A maximum of 4,382,000 acres was reached in 1925. Since the World War, production has fluctuated from year to year ranging below the pre-war normal until the seasons of 1925 and 1926.

The organizations for trading in the wheat of northeastern Yugoslavia that, before the World War had been directed from Budapest and Vienna have continued more or less effective since the war and heavy shipments of grain up the Danube have been made each year from these districts, although some of the western districts have been forced to import flour from abroad, and other sections of the country have been reduced to restricting their wheat consumption. Nevertheless, the international wheat trade has resulted in a net export each year which, in the crop year 1925-26, amounted to 9,219,000 bushels, as compared with the pre-war estimated surplus of 11,786,000 bushels. Complete reports for the trade of the year 1926-27 were not available at the closing of this report. Returns had been made on exports only for the 10 months August 1, 1926 through May 31, 1927 which indicate that wheat and wheat flour equivalent to 9,364,000 bushels were exported as compared with 10,290,000 bushels during the similar period of the previous season.

The heavy exports of wheat and wheat flour forced the western districts to import more flour by 14,453 short tons during the calendar year 1925 than was exported by the northeastern districts. (Table 97.)

TABLE 97.—Wheat and wheat flour: Imports and exports of Yugoslavia, 1921-1926

Year	Wheat flour		Wheat		Year	Wheat flour		Wheat	
	Imports	Exports	Imports	Exports		Imports	Exports	Imports	Exports
	Short tons	Short tons	Short tons	Short tons		Short tons	Short tons	Short tons	Short tons
1921	234	38,067	991	31,888	1924	23,646	65,118	3,641	190,038
1922	11,666	28,041	6,566	27,090	1925	56,634	42,181	26,362	187,345
1923	18,319	42,154	2,536	106,326	1926	116,094	36,178	10,961	327,697

1921-1925 compiled from 17, 1924-26; 1926, compiled from report of Consul Stewart E. McMillin, dated Mar. 28, 1927, Belgrade, Yugoslavia.

¹ "Quoted as milled products"; may include other flours than wheat flour.

Yugoslavia has been sorely in need of funds and consequently has heavily taxed the wheat and flour exports as well as exports of all other agricultural products. Although the harvest of 1922 was poorer than that of the preceding year, the export prohibition was removed. A net exportation equivalent to only 143,000 bushels of wheat went abroad. In 1922, nearly half as much flour was imported by the western districts as was exported from the commercial mills in the northeast. Although net exportations of wheat and flour expressed as bushels of wheat increased from 4,717,000 bushels in 1923-24 to 7,096,000 bushels in 1924-25 the imports of flour increased during this time so as to exceed exports.

This is the result of a peculiar situation that has developed in the milling industry in Yugoslavia. On August 16, 1923, the export tax on grain was reduced, but as this did not apply to flour, the milling industry and particularly the mills in western Croatia-Slavonia were placed in a critical position.

FLOUR MILLING

Flour milling is one of the most highly developed industries in Yugoslavia. The great majority of these mills are small village establishments that grind coarse wheat flour and corn meal for local consumption, employing wind, water, and even animals as power. Apart from these small mills, there are some 700 steam and motor mills in the larger centers of which about 200 engage in export as well as domestic trade.

There are 270 commercial mills in Voivodina, the largest of which, at Kikinda, has a daily capacity of 276 short tons as compared with a total daily capacity of 3,580 short tons for all the commercial mills of the District. There are 225 commercial mills in Croatia-Slavonia with a total daily capacity of 1,790 short tons, of which 165 short tons are accounted for by the large mills at Subotica. A large proportion of the export flour of the old Kingdom of Hungary originated in these two Districts north of the Danube and the Sava Rivers.

Thirty-five commercial mills are scattered throughout other parts of the Kingdom. Thirty of these mills are reported to have an annual capacity of 448 short tons each.

The old Kingdom of Serbia has 170 steam and motor mills that are equipped to grind about 896 short tons per day. There is one mill at Belgrade which grinds about 100 short tons daily, whereas the other mills are of relatively small capacity. Before the World War the export flour from the old Kingdom of Serbia was shipped south into Turkey, whereas most of the bran and other by-products went north into Austria-Hungary.

The milling capacity of the country has been estimated to range from 3,200,000 to 3,600,000 short tons of flour of which about 1,000,000 short tons represents the capacity of 50 of the largest mills. The maximum milling capacity is equivalent to 165,000,000 bushels of wheat or nearly twice the net production of the entire Kingdom during 1925-26. It must be borne in mind that the village mills in most parts of Yugoslavia are equipped to grind corn meal only as there is little local demand for wheat flour. However that may be, it is probable that the milling industry of Yugoslavia could grind all of the wheat produced in the country in addition to the corn meal required for human food.

Since the World War, the commercial mills of Yugoslavia have been so hampered by regulations, restrictions, and market conditions in customer countries that there has been little possibility of their resuming operations on a scale approaching their pre-war magnitude. In 1924, the export taxes on flour were rescinded; but, unfortunately, the world price was so low that the mills were unable to gain any advantage by their liberation from restrictions. Mill operations were slowed down to meet local day-to-day requirements and in 1925 many plants suspended operations altogether. Domestic production, particularly in the west, was so low that flour had to be imported to meet city requirements,⁷⁰ and the international trade of the entire Kingdom in 1925 resulted in a net importation of flour.

More wheat was exported from Yugoslavia during the calendar year 1926 than ever before in the history of the country, yet east-to-west transportation and trade relationships were so inadequately organized that many mills in the western part of the Kingdom were unable to secure grain enough to keep them profitably operating at full capacity. Their overhead was thus so high in proportion to their output that they found it difficult to compete with foreign flour. This crisis through which the milling industry in Yugoslavia is passing is similar to that affecting the industry in Hungary and Rumania because the former consumer countries, particularly Austria and Czechoslovakia, have maintained a higher tariff on flour than on wheat in order to encourage their own milling industries. There is also easily accessible and cheap water transportation facilitating the export of wheat to these northern countries and the trade in wheat is well organized.

The milling situation in Yugoslavia has been aggravated further by the lack of financial strength of the industry and on account of the attempt of the grain dealers of the country to liberate their operations from the speculative influences of the central European grain exchanges which have traded in the products of the south Danube States for decades. A grain market has been opened at Zagreb where, in 1925, several western European firms established branch agencies. These agencies are well supplied with cash to buy up grain of the particular quality required by their milling patrons at home. Both French and German agents bought grain in 1925 to be shipped on barges down the Danube to Braila for reshipment to Hamburg and Marseilles. Local mills, unless well financed, can not compete with these agencies and, if unable to get the best grades of wheat for their own use, will not be able to produce flour of the former pre-war excellence. They will thus not be able to compete with American and other foreign flours in their foreign markets in central Europe,⁷¹ reached by river transportation up the Danube, or their Oriental markets reached through Istanbul and Salonika.

The bulk of all wheat shipments in 1926 went up the Danube to Czechoslovakia; or to Italy through Fiume; or down the Danube to Braila for reshipment to Western Europe. Most of the export flour was shipped to Salonika, for Turkish or other Oriental destinations.

⁷⁰ The sale of domestic flour in Dalmatia and other Districts along the Adriatic coast is further seriously handicapped by high freight rates and the limited capacity of the narrow-gauge railroads connecting the interior of the Kingdom with the sea. Until these handicaps have been removed it will be difficult for the mills of Yugoslavia to capture the markets of the Adriatic coast from the Italian and United States millers.

⁷¹ The commercial mills north of the Danube and the Sava Rivers formerly marketed their flour under Hungarian trade names.

It was reported that the exchange value of the dinar during 1925 strengthened from 1.28 cents to 1.89 cents,⁷² and that domestic grain prices fell off in proportion. It is claimed, as a consequence of the fall in wheat prices, that the 1925 crop was grown without profit to the farmer. Whatever the cause, wheat areas, although exceeding the pre-war average, fell 204,000 acres in 1926 below the post-war maximum reached in 1925.

TABLE 98.—Wheat flour: Imports into Yugoslavia by countries of origin, 1922-1925

Country from which imported	1922	1923	1924	1925
	Short tons	Short tons	Short tons	Short tons
Italy ¹	6,867	14,962	22,489	31,486
United States.....	3,241	1,303	641	2,449
Hungary.....	(7)	45	79	3,739
Czechoslovakia.....	203	26	15	2,671
Greece.....	33	(7)	26	3,162
Other countries.....	1,312	1,983	396	13,127
Total.....	11,656	18,319	23,466	56,634

From report of Assistant Trade Commissioner John A. Embrey, dated Mar. 28, 1927, Vienna, Austria.

¹ May include reexports of flour received at the port of Trieste from the United States and other countries.

² Less than 500 pounds.

³ Adjusted to agree with 1925 figure in Table 97.

THE POSITION OF THE UNITED STATES

In 1925 the United States sent directly to Yugoslavia 2,449 short tons of flour (Table 98) as compared with 31,486 short tons shipped from Italy through Trieste. It is probable that a considerable portion of this import of flour from Italy was reexported to Yugoslavia, having originated in the United States.

There is no logical reason why Yugoslavia, a great wheat surplus-producing region with a well-developed milling industry, should not fully supply its own wheat-flour requirements. The present situation is the result of poor transportation facilities and the lack of organization in the east-to-west trade. The eastern districts have been accustomed to sell their surplus to the markets of northern Europe. The western districts have been accustomed to look to Vienna commission houses to supply their requirements. This practice is continuing. As soon as the deficit districts get into proper trade relationships with the surplus districts the importation of wheat flour into Yugoslavia will dwindle to negligible proportions.

TABLE 99.—Wheat: Exports and average export price per bushel, 1920-1926

Year	Exports	Average export price		Dinars per United States dollar	Year	Exports	Average export price		Dinars per United States dollar
		Per kilo-gram	Per bushel				Per kilo-gram	Per bushel	
	Short tons	Dinars	Dollars	Number		Short tons	Dinars	Dollars	Number
1920.....	45,848	2.70	2.52	29.2	1924.....	190,038	3.90	1.35	78.9
1921.....	51,880	3.20	1.89	46.2	1925.....	187,345	3.00	1.39	58.9
1922.....	27,040	4.75	1.73	74.8	1926.....	322,667	2.90	1.39	66.6
1923.....	106,326	4.00	1.16	63.7					

From report of Consul Stewart E. McMillin, dated March 28, 1927, Belgrade, Yugoslavia.

⁷² According to the official reports the exchange value of the dinar increased from 1.6 cents to 1.77 cents. However, the fluctuations of actual operations are usually wider than those reported as official.

RYE

Rye was not a crop of great importance in Yugoslavia before the World War, although the territories now comprised within the Kingdom of Yugoslavia produced an exportable surplus of approximately 1,238,000 bushels. As shown in Table 100, annual per capita disappearance averaged only 0.68 bushel. Since the war, although consumption has been far below the pre-war normal, rye exports have dwindled to insignificance.

TABLE 100.—Rye: Statistical balance of Yugoslavia, pre-war average, and annual, 1921-22 to 1926-27

District	Years	Acres	Seed	Production		Disappearance		Surplus (+) or deficit (-)
				Gross	Net	Statistical	Per capita	
		1,000 acres	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	
Pre-war period:								
Old Kingdom of Serbia ¹	1909-1911	74	225	1,613	1,338	1,131	0.388	+4,257
South Serbia ²	1909-1911	129	446	2,820	2,416	1,182	1.71	+1,224
Montenegro ³	1909-1913	6	119	67	48	48	.20	(7)
Bosnia-Herzegovina ⁴	1911-1913	45	145	433	340	642	.332	-302
Dalmatia ⁵	1909-1913	17	122	200	148	210	.332	-62
Croatia, Slavonia, Medjumurje, Kri, and Kistva ⁶	1909-1913	270	9821	3,731	2,910	3,879	1.42	-999
Slovenia and Prekmurje ⁷	1909-1913	107	1925	1,640	1,315	353	.332	+262
Vojvodina ⁸	1909-1913	60	182	1,395	1,124	1,009	.79	+55
Ceded by Bulgaria ⁹	1909-1912	10	30	121	91	28	.388	+63
Total.....		718	2,203	11,983	9,780	8,542	.678	+1,238
Post-war period ¹⁰								
	1921-22	461	1,415	5,816	4,401	4,312	.339	+499
	1922-23	487	1,495	4,623	3,028	3,027	.249	+1
	1923-24	462	1,418	5,906	4,488	4,474	.353	+14
	1924-25	483	1,463	5,541	4,058	3,811	.305	+247
	1925-26	493	1,514	7,864	6,330	6,103	.482	+247
Average, 1921-1925.....		477	1,465	5,930	4,465	4,345	.352	+120
	1926-27	500	1,535	7,454	5,919			

¹ See Table 96 in wheat for populations.

² Same as note 2 in Table 96.

³ 3,942 bushels per acre; same as Bulgaria.

⁴ Net exports for rye for calendar years (17, 1909-1911).

⁵ Same as note 5 in Table 96.

⁶ 3.12 bushels per acre; midway between Bulgaria and Bosnia-Herzegovina.

⁷ Midway between Bulgaria and Bosnia-Herzegovina.

⁸ See note 8 in Table 96.

⁹ Same rate as Bosnia-Herzegovina.

¹⁰ The seed and food requirement of Bosnia-Herzegovina was estimated at 787,000 bushels (16, p. 35).

¹¹ Same as note 12 in Table 96.

¹² Same rate as Bosnia-Herzegovina.

¹³ Same as note 15 in Table 96. Includes maslin.

¹⁴ At same rate as estimated by the Royal Hungarian Ministry of Agriculture for Croatia-Slavonia (17, p. 16).

¹⁵ See note 15 in Table 96.

¹⁶ At same rate as in Croatia-Slavonia, etc.

¹⁷ See note 19 in Table 96. Includes maslin.

¹⁸ At same rate as used in (25, p. 16).

¹⁹ At same rate as old Kingdom of Serbia.

²⁰ See note 25 in Table 96.

²¹ 3.07 bushels per acre used for 1921 to 1926, as indicated in pre-war average.

²² Net exports of rye for years beginning Aug. 1 (17, 1924-1927).

Before the World War the southern Slavic races seeded 718,000 acres of rye⁷³ chiefly in Croatia-Slavonia, south Serbia, and Slovenia. Since 1921 rye areas have fluctuated about the 1921-1925 average of 477,000 acres, increasing to 500,000 acres in 1926.

Most of the rye produced in Yugoslavia is consumed locally with the exception of a small surplus produced in south Serbia, which is sent to northern markets. The quality of this rye is poor and the quantity unimportant. As in most other parts of southern and southeastern Europe, rye cultivation in Yugoslavia is giving place to that of wheat or corn wherever soil and climatic conditions admit.

⁷³ Includes maslin, a mixture of wheat and rye, which is planted, harvested, and milled as a mixture for home use.

BARLEY

Barley is not an important crop in Yugoslavia. It is far more profitable to grow corn as a fodder grain than barley in these southern Districts. The brewing barley produced does not compare with that grown in Czechoslovakia and is not in demand as an export cereal.

There are 40 breweries ⁷⁴ in Yugoslavia with an annual capacity of 1,600,000 hectoliters (42,267,000 gallons). The capacity of the breweries is more than double the average consumption of beer in Yugoslavia, which is about 700,000 hectoliters (18,492,000 gallons). Locally produced barley is utilized at most of these breweries and barley is seeded in proportion to local demand or according to local soil conditions.

During 1909-1913 the annual area under barley averaged 1,247,000 acres in all Yugoslavia. (Table 101.) Net production averaged 18,781,000 bushels, of which 16,387,000 bushels, or 1.3 bushels per capita, were consumed locally for industrial purposes or for feeding livestock. This left approximately 2,394,000 bushels as a surplus to be exported to foreign countries.

TABLE 101.—Barley: Statistical balance of Yugoslavia, pre-war average, and annual, 1921-22 to 1926-27

District	Years	Acreage	Seed	Production		Disappearance		Surplus (+) or deficit (-)
				Gross	Net	Statistical	Per capita ¹	
Pre-war period:		1,000 acres	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels
Old Kingdom of Serbia ²	1909-1911	268	1,837	4,907	4,100	2,454	0.84	+1,706
South Serbia	1909-1911	367	1,146	6,846	5,700	3,313	1.99	+2,387
Montenegro ³	1909-1913	7	222	109	87	87	3.65	(0)
Bosnia-Herzegovina ⁴	1911-1913	221	1,600	3,244	2,554	3,063	2.02	-1,349
Dalmatia ⁵	1909-1913	47	147	697	550	1,276	11.22	-726
Croatia, Slavonia, Medjmurje, Kik, and Kastav ⁶	1909-1913	165	1,478	2,580	2,102	2,102	7.7	(0)
Slovenia and Prekmurje ⁷	1909-1913	48	139	854	695	2,149	11.77	+1,451
Vojvodina ⁸	1909-1913	116	1,336	5,178	2,842	1,042	1.02	+1,800
Ceded by Bulgaria ⁹	1909-1912	8	225	116	91	61	8.4	+30
Total		1,247	3,820	22,001	18,781	16,387	1.30	+2,394
Post-war period ¹⁰								
	1921-22	910	2,785	13,378	10,903	10,609	8.4	+554
	1922-23	927	2,837	11,069	8,232	8,229	6.8	+13
	1923-24	891	2,729	11,065	11,359	11,121	9.0	+218
	1924-25	869	2,731	13,479	10,728	9,083	7.7	+1,145
	1925-26	883	2,702	18,145	15,443	14,359	1.14	+1,084
Average, 1921-1925		902	2,760	14,027	11,267	10,666	8.6	+601
	1926-27	867	2,653	17,275	14,622			

¹ See Table 96 for populations.

² See note 2 in Table 96.

³ 1,122 bushels per acre; same as Bulgaria.

⁴ Net exports of barley for calendar years (17, 1909-1910).

⁵ See note 5 in Table 96.

⁶ Midway between Bulgaria and Bosnia-Herzegovina.

⁷ See note 8 in Table 96.

⁸ It is assumed that net production and disappearance balance.

⁹ Area and production from (27, 1911).

¹⁰ The seed and food requirement of Bosnia-Herzegovina is estimated at 4,500,000 (16, p. 30).

¹¹ See note 12 in Table 96.

¹² At same rate as Bosnia-Herzegovina.

¹ See note 15 in Table 96.

² At rate estimated for Croatia-Slavonia by the Royal Hungarian Ministry of Agriculture (25, p. 27).

³ See note 18 in Table 96.

⁴ Same rate as Croatia-Slavonia, etc.

⁵ Same as note 19 in Table 96.

⁶ At same rate as estimated in (25, p. 27).

⁷ At same rate as Croatia-Slavonia, etc.

⁸ Same as note 22 in Table 96.

⁹ At same rate as Old Kingdom of Serbia.

¹⁰ See note 25 in Table 96.

¹¹ 3.06 bushels per acre used 1921 to 1926 as indicated in pre-war average.

¹² Net exports of barley for years beginning Aug. 1 (17, 1924-27).

Barley areas in Yugoslavia have fluctuated about the 1921-1925 average of 902,000 acres, producing an average of 11,267,000 bushels

⁷⁴ There are 14 breweries in Croatia, in north and south Serbia and Montenegro 13, in Vojvodina 5, in Slovenia 5, and in Bosnia 3.

(net). Disappearance has averaged about 10,666,000 bushels or 5,721,000 bushels below the pre-war normal. The small exportable surplus of 601,000 bushels has been negligible. Barley is not a popular grain among the Yugoslavs, being seeded, usually, on land too poor for wheat. There appears to be a tendency to replace barley with corn in Vojvodina and in Croatia-Slavonia.

OATS

Before the World War, the south Slavs seeded about 1,381,000 acres to oats, nearly half of which was planted in Croatia-Slavonia and in Vojvodina. The District of Batchka, in northwestern Vojvodina, was famous for the quality of its oats exported to Vienna. Most of the oats from the old Kingdom of Serbia went up the Danube to Austria-Hungary and Bavaria in south Germany. Lesser quantities were shipped to Sofia and Istanbul. Bosnia-Herzegovina produced a net surplus of over 1,000,000 bushels of oats annually.

Gross production of oats before the World War averaged 35,528,000 bushels. Seed requirement averaged 5,861,000 bushels and domestic disappearance reached 24,217,000 bushels annually or about 20.57 bushels per horse. The surplus available for export each year was approximately 5,450,000 bushels. (Table 102.)

TABLE 102.—Oats: Statistical balance of Yugoslavia, pre-war average, and annual, 1921-22 to 1926-27

District	Year	Acreage	Seed	Production		Disappearance		Surplus (+) or deficit (-)
				Gross	Net	Statistical	Per horse ¹	
Pre-war period:		1,000 acres	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels
Old Kingdom of Serbia ²	1909-1911	265	1,983	5,079	3,986	3,454	22.65	+4,532
South Serbia	1909-1911	153	1,548	2,565	2,017	1,105	15.46	+912
Montenegro ³	1909-1913	2	8	36	28	133	115.17	-125
Bosnia-Herzegovina ⁴	1911-1913	24	1,000	5,384	4,378	3,367	15.17	+1,011
Dalmatia ⁵	1909-1913	7	29	89	60	393	115.17	-333
Croatia, Slavonia, Medjmurje, Kik, and Kastav ⁶	1909-1913	257	1,117	5,244	4,127	4,406	12.50	-279
Slovenia and Prekmurje ⁷	1909-1913	87	386	2,568	2,182	768	115.17	+1,414
Vojvodina ⁸	1909-1913	372	1,616	12,675	10,394	10,394	36.52	+2,281
Ceded by Bulgaria ⁹	1909-1912	14	58	272	214	177	22.65	+37
Total		1,381	5,861	35,528	29,667	24,217	20.57	+5,450
Post-war period ¹⁰								
	1921-22	1,003	4,257	18,907	14,650	14,649	13.70	+1
	1922-23	966	4,100	18,272	14,172	14,157	13.56	+15
	1923-24	928	3,928	21,476	17,538	17,548	16.32	+190
	1924-25	872	3,701	20,296	17,095	16,625	15.77	+470
	1925-26	856	3,633	25,772	20,139	19,063	17.24	+1,679
Average, 1921-1925		925	3,926	20,645	16,719	16,309	15.34	+330
	1926-27	871	3,697	20,645	20,948			

¹ For number of horses see Table 111.

² Same as note 2 in Table 96.

³ 4,123 bushels per acre; same as Bulgaria.

⁴ Net exports for calendar years (17, 1909-1910).

⁵ See note 5 in Table 96.

⁶ Midway between old Kingdom of Bulgaria (15.75 bushels) and Bosnia and Herzegovina.

⁷ See note 8 in Table 96.

⁸ Same as Bosnia-Herzegovina.

⁹ Same as note 10 in Table 96.

¹⁰ Net exports 1911-1913, 1911 and 1912 (5, July 1-10); and 1913 (2, p. 85).

¹¹ See note 12 in Table 96.

¹² See note 15 in Table 96.

¹³ Seed (4,348 bushels per acre) and disappearance per horse, assumed to be at same rate estimated by

the Royal Hungarian Ministry of Agriculture for Croatia-Slavonia (25, p. 25).

¹⁴ Same as note 18 in Table 96.

¹⁵ 4,458 bushels per acre; same as estimated for Murje (25, p. 25).

¹⁶ See note 19 in Table 96.

¹⁷ 4,315 bushels per acre; seed, and 36.52 bushels per head of horses, as estimated for Vojvodina (25, p. 25).

¹⁸ Same as note 22 in Table 96.

¹⁹ At same rate as old Kingdom of Serbia.

²⁰ See note 25 in Table 96.

²¹ 4,214 bushels per acre used, 1921 to 1926, as indicated in pre-war average.

²² Net exports for years beginning Aug. 1 (17, 1924-27).

When compared with conditions in Czechoslovakia, the production of oats in most Districts of Yugoslavia is unprofitable on account of the low yield per acre obtained. Consequently the seeding of oats has been governed largely by local demands or by peculiar local conditions of soil and climate.

In 1921 acreage had fallen off to 1,003,000 acres as compared with an average of 1,381,000 acres for 1909-1913. Until 1926 acreage under oats decreased each succeeding year. Production has also been very low, ranging from 10,000,000 to 17,000,000 bushels below the pre-war normal production. On the other hand, disappearance per head of horses has been much lower than before the World War, so that each year a small surplus has been exported. In 1925 net exports reached 1,076,000 bushels. Although there was a slight recovery of oats acreage in 1926 and a further increase to 917,000 acres in 1927, according to preliminary report it appears that oats as well as rye and barley are proving less profitable than corn and wheat and that, consequently, their cultivation is being replaced to a considerable extent by that of the two latter cereals.

CORN

Corn is the most commonly planted cereal among the southern Slavs. Before the World War 39.4 per cent of the cereal acreage was under corn, as compared with 33.1 per cent under wheat. During the 5-year period ended 1925 the percentage of cereal acreage under corn had increased to 43.3 per cent, as compared with 35.9 per cent under wheat. In 1925 the wheat area was 372,000 acres above the 1909-1913 average whereas corn was 372,000 acres above. In 1926 the areas of wheat and corn were 168,000 acres and 156,000 acres above normal, respectively. The corn belt of Yugoslavia includes the old Kingdom of Serbia, eastern Croatia-Slavonia, northeastern Bosnia, and all of Voivodina. These Districts lie in the valleys of the Danube, and its tributaries, the Sava, the Drava, and the Tisza, in the richest soil region of the Kingdom. Climatic fluctuations, however, range widely from drought to flood interspersed with hail. Consequently there are wide yearly fluctuations in production.

Before the World War the District of Voivodina produced a surplus approximated at 21,220,000 bushels of corn annually, as compared with an average export of 5,020,000 bushels from the old Kingdom of Serbia. A little more than half of this export from the old Kingdom went up the Danube to Germany and Austria-Hungary and a little less than half went down the river to Rumania for reshipment to Belgium and other western European countries. The eastern part of Croatia-Slavonia also produced a surplus of corn; but, although the net production of the Districts as a whole reached 24,781,000 bushels, an additional 1,198,000 bushels had to be imported annually to meet the feeding-stuff requirements of the local animal industry.

Northeastern Bosnia, lying in the corn belt, exported about 829,000 bushels of corn annually, whereas the agriculturally poorer regions of western Bosnia and of Herzegovina imported an average of 1,166,000 bushels, resulting in a net importation of about 337,000 bushels. All other Districts required importations of corn to supplement local production.

As shown in Table 103, net production in all Districts now comprising Yugoslavia averaged 113,765,000 bushels before the World

War, disappearance averaged 94,657,000 bushels, or 7.51 bushels per capita, leaving approximately 19,108,000 bushels available for export.

Table 103.—Corn: Statistical balance of Yugoslavia, pre-war average, and annual, 1921-22 to 1926-27

District	Years	Acreage	Seed	Production		Disappearance		Surplus (+) or deficit (-)
				Gross	Net	Statistical	Per capita ¹	
Pre-war period:								
Old Kingdom of Serbia ²	1909-1911	1,000 acres	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels
South Serbia ³	1909-1911	1,443	1,618	24,994	23,375	24,386	8.36	+15,020
Montenegro ⁴	1909-1911	306	* 131	6,359	6,228	6,929	* 4.16	-698
Bosnia-Herzegovina ⁵	1909-1913	28	* 12	365	333	661	2.77	-308
Dalmatia ⁶	1909-1913	621	* 266	8,176	7,919	8,247	4.22	-337
Croatia, Slavonia, Međimurje, Krk, and Kastav ⁷	1909-1913	89	* 38	1,572	1,534	2,097	* 4.27	-1,163
Slovenia and Prekmurje ⁸	1909-1913	1,063	* 590	25,371	24,781	25,979	* 9.51	-1,198
Voivodina ⁹	1909-1913	1,171	* 656	42,539	41,864	20,044	* 4.27	-3,133
Ceded by Bulgaria ¹⁰	1909-1912	19	* 8	318	310	605	* 8.36	-265
Total		4,773	2,343	116,108	113,765	94,657	7.51	+19,108
Post-war period: n								
1921-22	4,646	* 2,277	73,788	71,511	72,115	6.00		-694
1922-23	4,722	* 2,314	80,796	87,482	83,678	6.87		+3,804
1923-24	4,452	* 2,181	84,781	82,000	73,085	5.92		+11,695
1924-25	4,856	* 2,379	140,399	147,020	107,327	8.59		+39,693
1925-26	5,222	* 2,559	140,233	146,074	111,497	8.81		+35,577
Average, 1921-1925		4,780	2,342	109,399	107,057	80,524	7.26	17,533
1926-27	4,929	2,415	134,251	131,836				

¹ For populations, see Table 96.

² Same as note 2, Table 96.

³ 0.428 bushel per acre; same as Bulgaria.

⁴ Net exports of corn for calendar years (17, 1909-81).

⁵ Same as note 5 in Table 96.

⁶ Midway between old Kingdom of Bulgaria (4.05) and Bosnia and Herzegovina.

⁷ Same as note 8, in Table 96.

⁸ Imports for 1912, reported in (16, p. 96).

⁹ Same as note 10, Table 96.

¹⁰ Net imports 1911-1912, 1911 and 1912 (6, Jahrg. 14-16); 1913 (16, p. 28).

¹¹ Same as note 12, in Table 96.

¹² Same rate as Bosnia and Herzegovina.

¹³ Same as note 15, in Table 96.

¹⁴ 0.59 bushels seed per acre, and 9.51 per capita, disappearance. Same rate as estimated for Croatia-Slavonia, by the Royal Hungarian Ministry of Agriculture (25, p. 19).

¹⁵ Same as note 18, in Table 96.

¹⁶ 0.55 bushel seed per acre; as estimated for Murje (22, p. 19).

¹⁷ Same as note 19, in Table 96.

¹⁸ 0.56 bushel seed per acre, and 15.26 bushels per capita as estimated for Voivodina (24, p. 19).

¹⁹ Same as note 22, in Table 96.

²⁰ Same rate as old Kingdom of Serbia.

²¹ See note 25, in Table 96.

²² 0.49 bushel per acre used 1921-1926, same as pre-war average.

²³ Net exports (+) and net imports (-) for calendar years following the crop year (17, 1909-1927).

Corn forms the staple diet of the peasants in the old Kingdom of Serbia; wheat and rye breads are eaten only on rare holidays. Among the other south Slavic peoples, corn is employed as human food to a less extent than among the Serbs but is eaten more or less, as in Bulgaria. The peasants of the northern Corn Belt in Voivodina, like the farmers of the Corn Belt in Iowa and Illinois, utilize corn chiefly for feeding hogs and other livestock.

An illustration of the wide fluctuations in the yields of corn in Yugoslavia is offered by the crop of 1922. The area planted was 4,722,000 acres, which was nearly equal to the pre-war average. The net production was only 87,482,000 bushels and some sections of the Kingdom were forced to import corn not only as a feeding

stuff for livestock but as human feed. Numbers of swine decreased sharply in 1922 and did not recover until the bumper crops of 1924 and 1925 again furnished supplies of cheap feed.

There were no considerable exports of corn from Yugoslavia until 1925 following the bumper crop of 147,020,000 bushels of the year before. Although the export price was relatively good (equivalent to 86 cents a bushel United States currency), the area under corn for the crop of 1926 fell off 293,000 acres, decreasing to 4,929,000 acres.

In 1926, the total exportation largely from the crop of the year before reached 35,223,000 bushels at an average export price equivalent to 67 cents, as indicated in Table 104.

TABLE 104.—Corn: Exports and average export price per bushel, 1920-1926

Year	Exports	Export price		Dinars per United States dollar	Year	Exports	Export price		Dinars per United States dollar
		Per kilogram	Per bushel				Per kilogram	Per bushel	
	Short tons	Dinars	Dollars			Short tons	Dinars	Dollars	
1920.....	120,818	1.25	1.09	29.2	1924.....	276,224	2.40	.77	78.9
1921.....	349,716	1.40	.95	46.2	1925.....	1,115,729	2.00	.86	58.9
1922.....	12,637	3.73	1.27	74.8	1926.....	986,245	1.50	.67	56.6
1923.....	112,009	3.25	.88	93.7					

From report of Consul Stewart E. McMillan, dated Mar. 28, 1927, Belgrade, Yugoslavia.

Net production in 1926 decreased to 131,836,000 and preliminary reports indicate a similar falling off in exports which were 7,211,000 bushels for the 6-month period ended June 30, 1927, as compared with 27,937,000 bushels for the corresponding period the previous year.

These large corn crops are bound to have an influence upon animal production and it is probable that both swine and cattle numbers will increase somewhat in the corn belt.

Nearly half the corn exported from Yugoslavia in 1926 went down the Danube to Braila for reshipment to western Europe. The remainder was exported to Czechoslovakia and Italy in about equal quantities.

OTHER CEREALS

Other cereals grown in Yugoslavia are: Maslin and spelt for home consumption among the Christians and millet in Mohammedan communities. Buckwheat and rice are also grown. (Table 105.)

TABLE 105.—Other cereals: Area and production in Yugoslavia, 1921-1925

Cereal	1921		1922		1923		1924		1925	
	Acreage	Production	Acreage	Production	Acreage	Production	Acreage	Production	Acreage	Production
		Bushels		Bushels		Bushels		Bushels		Bushels
Maslin.....	100,846	1,176,800	107,442	940,083	102,374	1,238,827	90,838	1,216,502	107,780	1,655,271
Millet.....	88,517	622,290	87,070	464,017	88,907	1,001,026	85,586	1,058,468	77,228	1,113,480
Spelt.....	46,388	626,846	52,084	522,986	56,702	1,007,519	54,694	884,238	50,495	816,337
Buckwheat.....	71,508	379,944	81,510	890,498	14,702	170,462	11,715	145,062	15,446	190,441
		Pounds		Pounds		Pounds		Pounds		Pounds
Rice.....	4,512	530,239	5,117	4,764,361	5,070	5,408,951	3,724	4,366,855	3,654	7,125,981

1921-1925, compiled from (46, 1922-21, 1924-23, 1925-24).

POTATOES

Before the World War the territories now comprising Yugoslavia planted on the average 455,000 acres to potatoes, of which about 199,000 acres were in Croatia and Slavonia, 87,000 acres in Slovenia, and 51,000 acres in Voivodina. That is to say, about 74 per cent of the potato acreage in Yugoslavia was found north of the Danube and the Sava Rivers. Potatoes are not employed to any considerable extent in the manufacture of alcohol in Yugoslavia, as is the case in Czechoslovakia, because yields per acre are low and cost of production high except in certain restricted districts where soil and climatic conditions are particularly favorable. As a rule, beet-sugar molasses, barley, plums, and prunes are employed instead of potatoes for the manufacture of alcohol in the south.

In the old Kingdom of Serbia the principal diet of the rural population is bread made of corn meal and occasionally of wheat flour, together with raw onions and bacon or fat side pork. This diet is sometimes varied with cheese and with meat cooked with potatoes and paprika; but, on the whole, very small quantities of potatoes are consumed as human food.

It is probable that in the old Kingdom of Serbia, in south Serbia, and in Montenegro potatoes were rarely employed by the distilleries. Corn is utilized almost universally in pork production south of the Danube and the Sava Rivers, whereas potatoes are seldom if ever fed to livestock. The use of potatoes for all purposes in these districts is very restricted, for disappearance averages less than one-half bushel per capita annually. (Table 106.)

This is in sharp contrast to conditions in northern Yugoslavia where, during 1909-1913, potato disappearance averaged from 4.81 bushels in Voivodina to 5.8 bushels in Slovenia. According to data assembled by the Austrian Ministry of Agriculture, the quantity of potatoes employed for feeding livestock and utilized in the industries in former Hungarian territories was equivalent to 30 per cent of the net production. Net production in these districts is considered to be gross production minus seed and minus an additional 10 per cent for decay and other losses. Before the World War, the livestock and industrial requirement of Croatia-Slavonia was placed at 4,627,000 bushels and the per capita supply available for human food was estimated at 1.03 quintals or 3.7845 bushels equivalent to a total of 10,338,000 bushels annually. Thus, there appears to have been a small surplus available for export, though this is probably a purely statistical balance.

Bosnia-Herzegovina during 1909-1912 imported an average of 121,000 bushels of potatoes. This would indicate a total average supply of 990,000 bushels available for all purposes. If, as the Austrian Ministry of Agriculture estimates, 30 per cent of the net production, or 261,000 bushels, was fed to livestock or utilized industrially, then about 729,000 bushels, or 0.377 bushel per capita, were consumed annually as human food.

This contrast between potato disappearance in the northern Districts and the disappearance south of the Danube and the Sava Rivers is very marked but probably represents with fair accuracy the actual average conditions that existed before the World War.

TABLE 106.—Potatoes: Statistical balance of Yugoslavia, pre-war average, and annual, 1921 to 1926

District	Year	Acreage	Seed	Production		Disappearance		Surplus (+) or deficit (-)
				Gross	Net ¹	Statistical	Per capita ²	
Pre-war period:		1,000 acres	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	
Old Kingdom of Serbia ³	1909-1911	28	4,722	1,721	836	850	0.29	+ 24
South Serbia ⁴	1909-1911	12	4,310	709	328	406	0.28	+ 138
Montenegro ⁵	1909-1913	6	1,155	238	77	77	.32	0
Bosnia-Herzegovina ⁶	1909-1912	60	1,771	2,933	869	990	.31	- 121
Dalmatia ⁷	1909-1913	12	4,310	1,419	967	322	.51	+ 645
Croatia, Slavonia, Med-								
murje, Krti, and Kostava ⁸	1909-1913	109	5,138	22,847	15,424	14,965	5.48	+ 459
Slovenia and Prekmurje ⁹	1909-1913	87	2,246	10,418	7,150	16,165	3.80	+ 965
Voivodina ¹⁰	1909-1913	31	1,305	6,567	4,662	16,510	4.81	+ 1,875
Ceded by Bulgaria ¹¹	1909-1912 ¹²	(11)	43	6	3	3	.04	(?)
Total		455	11,961	46,908	30,256	30,348	2.41	- 92
Post-war period ¹³								
	1921	516	13,566	26,184	10,000	9,670	.80	+ 4,339
	1922	532	13,986	31,100	14,004	13,844	1.14	+ 169
	1923	527	13,855	42,638	24,519	24,314	1.97	+ 205
	1924	538	14,144	37,733	19,834	19,545	1.56	+ 289
	1925	570	14,985	44,965	25,484	25,311	2.00	+ 173
Average, 1921-1925		537	14,107	36,528	18,768	18,537	1.50	+ 231
	1926	548	14,407	34,530	20,132	20,229	1.58	+ 97

¹ 10 per cent of gross production also deducted from each district for decay and other losses.

² See Table 96 for populations.

³ See note 2, in Table 96.

⁴ Estimated at same rate as Croatia and Slavonia, etc. See note 15.

⁵ Net imports indicated by (-) and net exports by (+), of potatoes for calendar years (17, 1909-21, 1924-27).

⁶ See note 5 in Table 96.

⁷ Midway between Bosnia-Herzegovina and old Bulgaria (0.04).

⁸ See note 8 in Table 96.

⁹ It is assumed that the total net production was consumed.

¹⁰ Acreage, seed and production (27, 1922, p. 463).

¹¹ Net imports for 1909-1912. 1911-1912 (5 *Jahrg.* 14-15). 1913 (16, p. 38).

¹² See note 12 in Table 96.

¹³ Estimated to be the same as Bosnia-Herzegovina.

¹⁴ See note 15 in Table 96.

¹⁵ At same rate as estimated by the Royal Hungarian Ministry of Agriculture for Croatia and Slavonia, 25.83 bushels seed per acre (22, p. 27).

¹⁶ Per capita supply of potatoes (1.03 metric quintals) in Croatia and Slavonia, as given in (27, 1922, p. 563), multiplied by population, plus 30 per cent of the net production to cover feed for livestock and industrial purposes.

¹⁷ See note 16 in Table 96.

¹⁸ See note 16 in Table 96.

¹⁹ Same rate as estimated for Voivodina in (25, p. 27) 25.59 bushels seed per acre.

²⁰ See note 22 in Table 96.

²¹ Only 115 acres.

²² Acreage and production 1921-1926 from official records of U. S. Department of Agriculture Bureau of Agricultural Economics.

²³ 26.29 bushels seed per acre, same as pre-war average.

The 1909-1913 net production of potatoes in the territories comprising the present Kingdom of Yugoslavia averaged about 30,256,000 bushels annually. Disappearance was approximately 30,348,000 bushels, indicating a small deficit to be imported.

In recent years the area planted to potatoes has increased until, in 1925, it reached 570,000 acres, as compared with 455,000 acres before the World War. But, because of low yields per acre, in no post-war year has production equaled the pre-war average. This decrease in yields is accounted for by unfavorable climatic conditions and by the fact that the quality of the seed potatoes employed since the war has been of low grade. The pre-war yields of potatoes in the former Hungarian and Austrian territories were maintained by the periodic renewal of the seed, improved varieties being imported

from Poland and Germany. Since the World War this practice has fallen into disuse.

Disappearance of potatoes in Yugoslavia since the World War has averaged about 1.5 bushels per capita—relatively much less than the estimated pre-war average of 2.41 bushels. Thus, although production has been less than pre-war each year, a small surplus has been available for export.

It is probable that north of the Danube and the Sava corn has replaced the customary pre-war potato ration fed to livestock to a very considerable degree.

It is also probable, since present potato production is measured largely by the demand for human food, that post-war potato acreages will continue somewhat higher than they were before the World War unless improved varieties of seed are imported to increase the yields considerably above present levels.

SUGAR BEETS AND BEET SUGAR

The beet-sugar industry of Yugoslavia is built around eight factories and refineries listed in Table 107. Two of these are located in the old Kingdom of Serbia, at Tchoupiria and Belgrade. There is one factory at Usora in Bosnia. The other five plants are located in Croatia-Slavonia and Voivodina. All but the first two factories were formerly part of the closely organized Austro-Hungarian sugar combine.

TABLE 107.—Acreage and production of sugar beets utilized by factories and production of raw sugar in Yugoslavia, 1913-14

District and factory	Acreage sown	Beets worked	Raw sugar
Bosnia: Usora		Short tons 29,196	Short tons 15,225
Serbia: Tchoupiria	14,371		
Belgrade ¹	2,503	21,296	12,689
Croatia-Slavonia: Osijek	5,009	33,433	14,222
Voivodina: Vukovar	7,252	140,545	14,492
Veliki Beceker	10,596	165,215	21,048
Vrbas	11,861		
Tarvenka	12,508	373,864	44,435
Velye ²	12,987		
Total	67,082	763,547	92,111

All acreage except those noted, beets worked and sugar production for Bosnia and Serbia, from report of Vice Consul H. R. Brown, Apr. 3, 1924.

Beets worked and sugar production for Slavonia and Voivodina (15, [Ed.] 22, p. 180).

¹ Estimated to be the same proportion to sugar beets worked, as the average area for 1920-1924 is to the beets worked during that period, as reported in above consular report.

² Converted from refined to raw on the basis, 1 ton of refined sugar is equivalent to 1.14 tons of raw sugar.

³ Estimated to be produced at the same rate per ton of beets as in Tchoupiria.

⁴ Owned by the State.

⁵ Estimated to be the same proportion to sugar beets worked as in Tarvenka given separately in the above consular report.

Some of the sugar factories in Yugoslavia are reported to be financed from Budapest, Vienna, Berlin, and London. The operating personnel of certain factories comprises a large number of Czechs, and the whole industry is reported to be closely associated with that of the three northern countries—Austria, Hungary, and Czechoslovakia.

For several years before the World War a single factory, operating at Belgrade, had produced sugar from domestically grown beets and had refined raw sugar imported from Hungary. In 1911 the Serbian-Czech factory at Tehouppia entered the production stage and Serbia became a sugar-exporting country, sending 3 carloads ⁷⁵ to Bulgaria and 120 carloads to Turkey. The factory in Bosnia did not produce enough sugar to meet the requirements of Bosnia-Herzegovina. During the 4-year period ended 1912 an average of 34 carloads of refined sugar were exported, probably to Montenegro and southern Dalmatia, whereas the equivalent of 850 carloads of refined sugar were imported from the Czech factories in Bohemia, Moravia, and Silesia.

There are no separate records of the pre-war relations of the other factories to the sugar requirements of the districts in which they are now located.

From the beginning of their operations, the three southern factories had developed beet growing among the peasants whereas in the northern districts, as generally throughout the old Hungarian Kingdom, the growing of sugar beets had been a speciality of the large estates. The details of the acreage to be planted and the compensation to be received were matters arranged between the management of the factories and a few large growers, who were often directly or indirectly interested in financing the manufacturing end of the industry. The owners of large estates in the territories now comprising northern Yugoslavia were chiefly Hungarians of the upper class, who either abandoned their properties and fled to Budapest after the treaty of Trianon became effective or were deprived of a large part of their estates through expropriation, these farm lands passing into the hands of a large number of small farmers.

The beet supply of the five northern factories was thus seriously affected by the land reform. Instead of making arrangements with a few large producers, as was formerly the practice, it was now necessary to enter into contract with a large number of small growers, to many of whom sugar-beet production was a new business. Furthermore, after the new frontiers were finally established it was found that a considerable part of the area that had supplied beets to these northern factories before the World War was now in residual Hungary and Greater Rumania. Customs barriers thus shut off more than half of the former beet supply.

Before the World War, as indicated in Table 107, the eight factories now in Yugoslavia had worked up during the season 1913-14, 763,547 short tons of beets which had been produced upon 67,082 acres. On the other hand, the annual pre-war area under beets in the territories south and west of the present boundary lines of Hungary and Rumania averaged only 35,162 acres, upon which were produced 380,540 short tons of beets, equivalent to 45,904 short tons of raw sugar. Thus, about 383,000 short tons, or more than half, of the beets worked in the factories of Croatia-Slavonia and Voivodina had, before the World War, been grown on present Hungarian and Rumanian territories.

⁷⁵ One carload is 10 metric tons, or 22,046 pounds.

TABLE 108.—Acreage and production of sugar beets: Production and foreign trade of raw sugar in Yugoslavia, average 1909-1913, and annual, 1920-21 to 1926-27

Year	Sugar beets		Raw sugar	
	Acreage	Production	Production	Imports (-) or exports (+) ¹
		Short tons	Short tons	Short tons
Average, 1909-1913 ²	35,162	380,540	45,911	(9)
1920-21	38,758	225,505	24,293	-39,685
1921-22	41,387	207,796	27,252	-33,679
1922-23	47,520	344,677	36,653	-19,112
1923-24	66,080	411,459	46,015	-13,887
1924-25	116,341	1,171,862	140,414	-11,317
1925-26	81,820	562,464	74,700	-1,582
1926-27	86,000	652,000	79,777	(9)

1920-21 to 1925-26 acreage and production, from official records of the United States Department of Agriculture, Bureau of Agricultural Economics. Imports 1920-1923, from consular report of K. S. Patton, Oct. 27, 1924; 1924 exports from consular report of K. S. Patton, Aug. 31, 1925; 1926, from consular report of K. S. Patton Feb. 28, 1927.

¹ Calendar years converted to raw from refined on the basis, 1.14 tons raw = 1 ton refined.

² Estimate for pre-war 1909-1911, for old Kingdom of Serbia and South Serbia; 1911-1913, for Bosnia-Herzegovina and 1909-1912 for territory ceded by Bulgaria. See Table 96 for sources.

³ Total sugar produced during the year 1913-14 in present Yugoslavia from beets that were grown in present Yugoslavia territory as well as on territories that remained in other countries. (Table 107). The estimated sugar production from beets grown on present Yugoslavian territory during 1909-1913 would amount to 45,904 short tons, assuming the sugar produced per ton of beets to be the same as in Table 107.

⁴ Not available.

⁵ Communication from International Institute of Agriculture.

⁶ (18, [9] 18).

The first difficulty of the sugar industry of Yugoslavia after the World War was to obtain acreage. After 1921 the acreage each year was greater than the 1909-1913 area within Yugoslavia itself, but it was not until the season of 1924-25 that the factories succeeded in contracting for as large an acreage as they had had in 1913-14. (Table 108.)

The peasants were not equipped with the requisite machinery for the cultivation of beets, and hand labor did not give the returns that were obtainable from some other crops, particularly corn. It has been stated that many peasants would not plant beets two years in succession. The manufacturers who in the meantime had organized themselves into the Union of Sugar Factories distributed books and pamphlets that described methods of cultivation. They also, conducted propaganda setting forth the advantages of beet cultivation, loaned machinery free to the peasants, supplied seed (in many cases free), and made cash advances to growers. All these inducements resulted, in 1924, in an acreage far above pre-war, 119,241 acres being planted. The season was favorable, and 1,171,862 short tons of beets were produced.

This large acreage and production of the year 1924 followed a conference of the sugar-beet growers and the manufacturers, at which a committee of four members from each group was appointed to act as advisers to the Ministry of Agriculture and Waters on questions relating to the industry. This committee fixed a minimum price of 30 dinars per 220 pounds of beets (equivalent to 16.3 cents ⁷⁶ per 100 pounds) for the crop of 1924. This was an appreciable advance over the price paid for the 1923 crop of 25 dinars per 220 pounds or 13.1

⁷⁶ During first three months of 1924 the value of 1 dinar averaged 1.1967 cents.

cents⁷⁷ per 100 pounds. This price for the 1924 crop is said to have been fixed on the basis of the world market price for sugar at the beginning of 1924 of 30 English pounds sterling per metric ton or \$5.83⁷⁸ per 100 pounds. By the time the sugar season opened the world price of sugar had fallen to 16 to 17 pounds sterling per metric ton (equivalent to \$3.26 to \$3.46 per 100 pounds).⁷⁹ This created serious difficulties. The factories delayed the acceptance of beets, and the beets lost in weight. The factories were not prompt in making payments.

As a result the sugar growers organized themselves into the Federation of Sugar Beet Growers in November, 1924, with the purpose of purchasing the two factories owned by the State and operating them cooperatively. Finally wealthy growers subscribed several million dinars, and work has been begun on the construction of two small factories, one at Crepayna and the other at Sivac, both in Voivodina. The daily capacities of these plants are 110 and 165 short tons of beets respectively. They will probably not produce over 2.5 per cent of the normal sugar production of the eight factories in operation. These factories can not begin operations for some time after the closing of this report, and then it is expected that their influence on the sugar situation will be small.

Although a large exportable surplus of sugar was produced in the season 1924-25 the quantity of sugar actually exported during 1925 was small, and it is estimated that the factories went into the campaigns of 1925-26 with about a year's supply of sugar on hand. On account of the low price previously received for beets many peasants had abandoned beet cultivation, and the total acreage was cut almost in half. The year was marked by conflicts between beet growers and the factories which finally resulted in more nearly satisfactory prices to the growers. The sugar-beet area for 1926-27 reached 86,000 acres. According to the report from the International Institute of Agriculture 79,777 short tons of raw sugar were produced.

The sugar cartel estimated that the carry-over at the end of 1925-26 was equivalent to 8,453 short tons of raw sugar. They estimated consumption for the year at 105,407 short tons (raw) of which 1,582 short tons (raw) were imported.

The estimated capacity of the present equipment of the sugar factories in Yugoslavia is about 165,000 short tons of raw sugar annually. It is thus possible, after adjustments between growers and manufacturers have been reached, to produce enough sugar in Yugoslavia to meet domestic requirements and to give an exportable surplus of 80,000 to 90,000 short tons per year.

Beet pulp is utilized locally as a cattle feed. About 10,000 short tons of dried pulp were shipped to the United States in 1925. Molasses, as well as the beets themselves, is used in the manufacture of alcohol.

TOBACCO

The southeastern portion of the District of south Serbia, annexed by the old Kingdom of Serbia at the close of the Balkan War in 1913, was formerly a portion of that part of Macedonia in the Ottoman

Empire that was devoted to the cultivation of Turkish tobacco.⁸⁰ The best grades of tobacco produced in Serbian Macedonia classify as "basma"—that is, the small-leaf, fined-veined cigarette tobacco. Similar tobacco is also grown in the old Kingdom of Serbia, in Herzegovina, in parts of Montenegro, and in south Dalmatia, although the quality of the tobaccos grown in these latter Districts will not average as high as that grown in Serbian Macedonia, as they are chiefly of the larger, coarser sorts that produce leaves of the secondary commercial grade called "bachi bali."

The tobaccos grown in northern Dalmatia, in Croatia, Slavonia, and Voivodina are of the large-leaf varieties.

The old Kingdom of Serbia planted an annual average of 5,930 acres to tobacco during 1909-1911, producing 4,288,000 pounds of leaf, from which 811,000 pounds were exported. On the other hand, 297,000 pounds of prepared tobacco, including cigars and snuff, were imported each year. This indicates a pre-war per capita consumption of 1.30 pounds of tobacco annually.

In Bosnia-Herzegovina the pre-war area under tobacco was approximately 7,181 acres, from which about 8,818,000 pounds of leaf were obtained. The net exportation of leaf tobacco during 1909-1912 averaged 1,686,000 pounds, as contrasted with a net importation of cigars and other forms of manufactured tobacco averaging 106,000 pounds. This would indicate an average annual disappearance equivalent to 3.75 pounds of tobacco per capita.

The heaviest producing tobacco region was south Serbia. The average pre-war area under tobacco in this region has been estimated to be 16,407 acres. Annual production has been approximated at 11,649,000 pounds. Assuming per capita disappearance to be midway between that of the old Kingdom of Serbia and that of Bulgaria, or about 1.75 pounds, about 8,736,000 pounds of tobacco would have been available for export each year.

Dalmatia produced a second-rate tobacco in large quantity shipping about 5,000,000 pounds annually to the Austrian tobacco monopoly.

No tobacco was grown in Slovenia and only a little in Croatia-Slavonia, but the tobacco monopolies of Austria and Hungary maintained factories in all of these Districts. Disappearance of all classes of tobacco, including cigars, cigarettes, pipe tobacco, and snuff, averaged between 2.54 and 2.67 pounds per capita annually. About 9,600,000 pounds of leaf and manufactured tobacco was shipped to these districts each year.

Voivodina consumed about 3,000,000 pounds of tobacco per year and shipped (net) about 620,000 pounds annually to other Districts. The quality of tobacco grown in the north was not first-class as compared with the finer grades produced in south Serbia or Herzegovina.

Taken as a whole, the territories now comprised within the Kingdom of Yugoslavia planted about an average of 40,475 acres of tobacco annually. In Table 109, production averaged 37,615,000 pounds. Disappearance was approximately 29,252,000 pounds. This released about 8,363,000 pounds per year for exportation to other countries.

⁷⁷ During the last three months of 1923 the value of 1 dinar averaged 1.1533 cents.

⁷⁸ During the first three months of 1924 the value of 1 English pound averaged \$4.2881.

⁷⁹ The average value of 1 English pound sterling during October, 1924, was \$4.487.

⁸⁰ Yugoslav tobaccos originated from Smyrna. They are now known by the names of the Districts in which they grow—Radovishte I, II, and Extra; Kočane—Zrnava; Malash; Trilip—Djuma; Rale Sketche I, Sketche II; Skopje—Crna-Gora, Blatija, Karshi-Jaka; Komonovo—Djuma; Vranje—Brazak, and Gushan; Prosechan, Karičevatz, Bainsavatz, Bosnian, Herzegovinian, Banat, Segedin—Ruzha, Tisza, Dalmatian, etc. (3, p. 185).

TABLE 109.—Tobacco: Statistical balance of Yugoslavia, pre-war average, and annual, 1921-1926

District	Year	Acreage	Production	Disappearance		Surplus (+) or deficit (-)
				Statistical	Per capita	
Pre-war period:						
Old Kingdom of Serbia.....	1909-1911	15,980	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>Pounds</i>	<i>1,000 pounds</i>
South Serbia.....		14,288	3,774	1.30		+ 314
Montenegro.....		16,407	11,649	913	1.75	+ 7,736
Bosnia-Herzegovina.....		11,768	804	4.75		+ 191
Dalmatia.....		17,181	8,818	2,238	3.75	+ 1,580
Croatia, Slavonia, Medjumurje, Krk, and Kastav.....	1909-1913	4,158	6,359	1,154	1.78	+ 5,435
Slovenia and Prekmurje.....	1909-1913	287	10	6,529	2.54	- 6,730
Vojvodina.....		4,601	(10)	2,840	2.67	- 2,840
Ceded by Bulgaria.....	1909-1912	7	4,056	3,456	11 2.54	+ 620
		143	651	94	1.30	+ 857
Total.....		40,475	37,615	29,252	2.32	+ 8,363
Postwar period ¹⁾:						
	1921	35,523	26,046			
	1922	31,419	20,704			
	1923	53,606	38,231	19,020	1.54	+ 19,211
	1924	87,051	78,671	18,974	1.52	+ 59,097
	1925	36,788	26,590			
	1926	36,000	32,682			

¹ Acreage and production (45).² 811,000 pounds net exports of unmanufactured tobacco, 1909-1911 (45), and 297,000 pounds imports of manufactured tobacco (45).³ Estimated to be the same proportion to old Serbia as 1920, as given in (46, 1921-20, p. 55).⁴ Estimated by assuming the yield per acre to be midway between that for old Kingdom of Serbia and South Bulgaria, 710 pounds per acre.⁵ Estimated to be midway between the per capita consumption of Bulgaria (2.20 pounds) and old Kingdom of Serbia.⁶ Assumed to be the same rate as Bosnia-Herzegovina.⁷ Acreage estimated by assuming the yield per acre to be equal to that in South Serbia.⁸ From translation of excerpt from Trgovinski Glasnik, from report of S. W. Carroll, Dec. 31, 1919. Reported as pre-war. No year specified.⁹ 1,680,000 pounds net exports of leaf tobacco and 106,000 pounds net imports of manufactured tobacco, 1909-1912 for Bosnia-Herzegovina (5, Jahrg. 12-10).¹⁰ Dalmatia acreage and production (1). An estimate of territory ceded to Italy has been subtracted.¹¹ Per capita consumption for total Dalmatia 1911 calculated from (2, Jahrg. 31), by dividing the population for 1911 into total distribution of tobacco for that year.¹² Acreage and production for Croatia-Slavonia (15). No tobacco produced in other areas.¹³ Assumed to be the same as that for total Hungary, as given in (16).¹⁴ No tobacco produced.¹⁵ Per capita consumption estimated to be equal to that for Kraine in 1911, as calculated from (2, Jahrg. 31), by dividing 1911 population into total distribution of tobacco for that year.¹⁶ Acreage taken from same source as note 12. Production estimated by assuming the yield per acre for each small division of Vojvodina to be the same as that given for tobacco produced according to the records of the tobacco monopoly given in the same source as note 10.¹⁷ Calculated from (9).¹⁸ Assumed to be at same rate as old Kingdom of Serbia.¹⁹ Acreage and production 1921-1925 (46, 1921-25, p. 35; 1925-26, p. 55); 1926 (18, p. 13).²⁰ From consular report of K. S. Patton, dated Apr. 8, 1925.²¹ From consular report of K. S. Patton, dated May 11, 1925.²² From consular report of K. S. Patton, dated May 11, 1925.

A State tobacco monopoly was established in the old Kingdom of Serbia in 1890 under the supervision of the Ministry of Finance. The pre-war manufacture and sale of tobacco in the other Districts except south Serbia and Montenegro was controlled by the tobacco monopolies of Austria and Hungary. In 1920 the old Serbian law was made uniformly applicable to the entire Kingdom of Yugoslavia. The present management of the tobacco monopoly controls the planting, the harvesting, the purchase, the manufacture, the sale, the importation, and the exportation of tobacco and tobacco products.

Tobacco acreage in Yugoslavia remained below the pre-war estimated average during 1921 and 1922, and production was low, but it is reported that about 320 carloads⁸¹ of tobacco were exported in 1922. In 1923 both acreage and production exceeded the pre-war

⁸¹ One carload is equal to 10 metric tons, or 22,046 pounds.

estimated averages. Production reached 38,231,000 pounds, from which the management of the tobacco monopoly, according to an unofficial report, prepared 500 carloads for exportation, but since Greece, Turkey, and Bulgaria also produced large crops of tobacco in that year, the Yugoslavian monopoly was unable to market this surplus to advantage in foreign countries.

The following year (1924), under permits from the tobacco monopoly, 87,051 acres were planted, from which 78,671,000 pounds of leaf were obtained. This bumper crop, twice that of the preceding year, overwhelmed the sales capacity of the monopoly, because Bulgaria, Greece, and Turkey again produced large crops.

This crisis was followed by a reduction in the number of permits granted and a more careful selection of Districts in which tobacco was permitted to be grown. Only the Districts that produce the highest quality of tobacco were allowed to grow the 1925 crop. No permits were issued in Slovenia, Slavonia or northern Dalmatia, or in the Banyaluka, Zvornik, and Bjelina Districts of Bosnia or in the Prozor District of Herzegovina. As a consequence the areas planted in 1925 and 1926 totaled about 36,000 acres from which 26,590,000 pounds of leaf were produced in the former year and 32,682,000 pounds in the latter.

Under 1924 conditions, the factories of Yugoslavia produced monthly 235,000,000 cigarettes, 2,500,000 cigars, 1,350,000 pounds of cut tobacco, and 175,000 pounds of chewing tobacco.

It is reported that in 1924 the consumption of cigarettes reached 2,681,531,689,⁸² cigars 43,683,812, of cut tobacco 12,261,000 pounds, of snuff and chewing tobacco 317,000 pounds, and 3,000 pounds of tobacco extract were sold. Thus, tobacco consumption for 1924 has been placed at approximately 18,974,000 pounds, far below the pre-war estimate.

Large stocks of tobacco accumulated in Yugoslavia during the years of the flurry of 1923 and 1924. These stocks are being disposed of by negotiations with tobacco monopolies of other European countries. Poland is reported to have taken several consignments.

It is probable that the 1926 acreage represents the level about which future tobacco acreage in Yugoslavia will fluctuate.

FODDER AND FORAGE CROPS

Between 1922 and 1925 there was an appreciable increase in the acreage of natural meadows as well as in pasture lands. (Table 110.) Cultivated forage plants totaled somewhat less at the end of the 4-year period ended 1925 than at the beginning.

TABLE 110.—Forage and fodder plants: Acreage and production in Yugoslavia, 1922-1925

Crop	Acreage				Production			
	1922	1923	1924	1925	1922	1923	1924	1925
	Acres		Acres		Acres		Acres	
Forage beets.....	46,900	44,325	48,790	43,307	215,717	225,667	249,600	271,695
Alfalfa.....	134,299	149,300	149,112	150,933	185,803	217,857	219,296	235,440
Clover.....	268,479	268,128	278,257	266,342	296,638	396,987	367,662	398,099
Turnips.....	53,065	9,452	8,540	7,971	154,800	30,071	22,232	20,338
Vetches.....	35,303	37,866	42,887	93,611	19,640	14,413	20,118	48,577
Other forage crops.....	144,887	170,020	138,376	96,858	4,054,429	2,554,506	3,384,430	3,684,737
Natural meadows.....	3,865,343	3,972,263	3,942,972	4,054,429	2,554,506	3,384,430	3,684,737	4,158,011
Pastures.....	6,519,894	6,560,593	6,647,118	6,816,810	-----	-----	-----	-----

Compiled from (17, 1925, 1924-1926).

⁸² A cigarette weighs 1 gram and a cigar 5 grams.

COTTON

A very small quantity of low-grade cotton is produced in the southern counties of Yugoslavia for export to Greece.

LIVESTOCK

When the Slavic clans poured into the Balkan peninsula from the northeast, the domestic animals of the native populations were of types similar to those of the Italian Peninsula, or were descended from the wild European cattle. Throughout their migrations from the plains of Russia these Slavic clans, which have since developed into the various branches of the present Nation of the Yugoslavs, clung tenaciously to the local races of household animals that had constituted their flocks and herds in the mother country (eastern Galicia). These animals were brought with them when the Slavs pressed southward by the Magyars, made their final stand in the ranges of the Balkan Mountains and the foothills of the Alps.

Remnants of the ancient Roman races of livestock are still to be found in Dalmatia and the coast counties of Croatia. To the north the Slavic steppe animals have given place to those of tartar origin brought by the Magyars from the south Volga regions, and in the southeast Turkish horses have left their impress.

During the last few centuries these Slavic peoples, with the exception of the Montenegrans, were under the domination of different foreign influences. The Serbs, including those in Bosnia-Herzegovina, and south Serbia were under the Turks. The Croats, the Slavonians, and the Serbs of Voivodina were under the Hungarians. The Slovenes and Dalmatians were under the Austrians, who a few years before the World War also wrested the control of Bosnia-Herzegovina from the Turks.

In most of the countries that were brought into subjection to the Turks, horse breeding was fostered by the Ottoman Government but for the most part the Turks left the fierce, warlike Serbs to their own devices. In the mountain districts, where the Serbian clan organization was maintained throughout the centuries of Turkish domination, the breeds of farm animals were identical with those brought in by the Serbs, or were mixtures of these with the breeds indigenous to the regions when the Serbs arrived. As to quality, no change had occurred for centuries.

After the warring clans had succeeded, in the early part of the nineteenth century, in establishing the governmental integrity of the old Kingdom of Serbia, the central Serbian Government undertook the improvement of horses for military purposes. In the recent years just preceding the World War, attempts were made to improve other classes of livestock. Under Hungarian tutelage the horses, cattle, swine, and to a lesser extent the sheep, north of the Danube and the Sava, were improved by the introduction of superior breeds of farm animals from central and western Europe. Although less systematic and thorough than the Hungarians, the Austrians stimulated the animal industry of Slovenia, but little or nothing was done in Bosnia-Herzegovina.

In the highlands of Montenegro (Black Mountain) sheep and goat herding is the main occupation of the people, who are outnumbered by their farm animals. In the precipitous coastal regions of Dalmatia

stock raising is chiefly confined to mountain sheep, goats, mules, and donkeys. Most of the mules and donkeys of Yugoslavia are found in the coast District of Dalmatia, though they are also important beasts of burden in the mountainous regions of Bosnia-Herzegovina and in south Serbia. In both south Serbia and the old Kingdom of Serbia sheep and goat herding have been characteristic occupations of the Zadrugas for centuries. Serbia, however, has been more famed for its pigs, and for the fine flavor of the pork and the quality of the fat produced by the hogs that are fed on the beechnuts and acorns of its forests. Horse breeding has been a leading large-estate industry of Batchka (northwest Voivodina)—a region particularly well adapted to the production of oats. Cattle are raised in all parts of Yugoslavia as work animals but very little attention has been given to their breeding except in the northern Districts.

HORSES

The breeds of horses found in Yugoslavia are most varied in origin and characteristics. In the mountains of Slovenia are found the heavy draft horse of early Roman and Spanish descent similar to the Norik of Austria. In the Slovenian lowlands, Croatia, Slavonia, and Voivodina the peasant horses are of the warm-blooded Tartar type similar to those of Hungary. Along the coast of Dalmatia vestiges of Roman types are found mingled with oriental breeds. In Bosnia-Herzegovina and Montenegro the horses are of the pack-animal type—small, nervous, warm-blooded. The native horses of the Serbs are of the Russian-steppe type, descended from the sturdy, ponylike animals that carried the Slavic warriors on their raids southward. Although small, these horses are wiry and resistant to cold, diseases, and hard usage. They constitute excellent foundation stock for crossing with the Norman horses from France, or with the Turkish and Arabian full bloods from the south, or with English and other breeds from the north.

Seven horse-breeding stations in Yugoslavia are maintained by the Government. These contain Norman, English, and Arabian sires for developing cavalry remounts and light draft horses. There are also Belgians for building up heavy-draft breeds.

The chief improved breeds of horses in Yugoslavia are the Posavaka, Lipican, Nonius, Hungarian, and Belgian. These are all crossbred strains of native stock and southern or northern blooded sires. Except for a few estates that specialize in purebred stock, the horse industry among the south Slavs consists of building up the native breeds.

Taking into consideration the enormous destruction of life and property in all parts of Yugoslavia occupied by the armies of the Central Powers during the World War, the relative status of the horse situation in 1921, as indicated in Table 111, is remarkable.

Between 1921 and 1925 the number of horses in Yugoslavia increased from 1,069,000 to 1,106,000, or to 93.9 per cent of the total pre-war number of horses estimated to have been in the territories now constituting the Kingdom of Yugoslavia. These figures are not comparable, since those for 1921 include all horses, whereas the data for 1922 to 1925, inclusive, include only horses used on farms and do not account for horses in cities, or those employed in the industries, or those in the Army.

TABLE 111.—Horses: Number in Yugoslavia, pre-war period, and 1921-1925, with exports for 1921-1926

District and year	Horses			Exports	
	Total	Per 1,000 acres	Per 1,000 population	Horses	Colts
Pre-war period:					
1910.....	Number	Number	Number	Number	Number
Old Kingdom of Serbia.....	1,132,523	13.0	32.4	.....	.....
Ceded by Bulgaria.....	7,810	.....	107.9	.....	.....
South Serbia.....	171,503	6.3	42.9	.....	.....
Montenegro.....	110,115	4.2	42.4	.....	.....
Bosnia-Herzegovina.....	421,981	17.5	114.9	.....	.....
Dalmatia.....	238,910	8.2	41.0	.....	.....
1910-1911—					
Croatia, Slavonia, Medlunje, Kik, and					
Kastav.....	435,510	32.5	120.0	.....	.....
Slovenia and Prekmurje.....	150,603	12.6	47.6	.....	.....
1911-Vojvodina.....	284,615	28.5	210.4	.....	.....
Total.....	1,177,571	19.2	93.5	.....	.....
Post-war period:					
1921.....	4,169,000	17.4	89.0	19 22,228	.....
1922.....	4,104,000	17.0	85.7	19 25,700	8,365
1923.....	4,063,000	17.3	86.2	19 12,479	6,124
1924.....	4,054,000	17.1	84.4	19 55,193	1,282
1925.....	4,106,000	18.0	87.4	19 32,767	140
1926.....	.....	.....	.....	19 56,374	295

1 (7, 1909-21.)

2 (10.)

3 Estimated to be the same as 1921.

4 (6, p. VIII.)

5 Calculated from (2, Jahrb. 31, p. 80).

6 1911 for Croatia and Slavonia, calculated from data in (15, 1912, p. 187); 1911 for Medlunje, calculated from Zala figures given in (15, 1915, p. 151); 1910 for Kik and Kastav, calculated from coast-land figures given in (2, Jahrb. 31, p. 80).

7 1910 for Slovenia, calculated from Siermark, Karnten and Krain figures, given in (2, Jahrb. 31, p. 90); 1910 for Prekmurje, calculated from Zala and Vas figures, given in (15, 1915, p. 131).

8 Calculated from data in (15, 1912, p. 187).

9 (22, p. 26). In those parts of Dalmatia occupied by Italians the enumeration of domestic animals on January 31, 1925, was impossible.

10 1921 exports from Commerce Reports (56, p. 489).

11 Horses employed in agriculture (17, 1925-26).

12 1922 exports, from reports of Consul K. S. Patton dated Aug. 18, 1924.

13 1923 and 1924 exports from reports of Consul K. S. Patton dated Mar. 30, 1925.

14 1925 and 1926 exports, from report of Consul Stewart E. McMillan, dated Mar. 28, 1927.

INTERNATIONAL TRADE IN HORSES

The old Kingdom of Serbia imported 175 horses from Austria-Hungary in 1910. In that year Bosnia and Herzegovina exported (net) 5,780 horses. It is probable that before the World War Croatia, Slavonia, and Voivodina produced a surplus of horses which was absorbed by the armies of Austria and Hungary.

Since the World War Yugoslavia has exported from 22,228 (1921) to 55,193 (1924) horses annually.

CATTLE

When the Slavic clans penetrated the Balkans they found that the scattered native population, including colonies of Roman farmers, owned cattle in some respects superior to the large-boned, long-limbed breed of draft ox that had dragged camp equipment for decades during their migrations from Galicia over the Carpathians and down the Danube to the Balkans. These draft oxen were put to service before the plow, and in the fertile valleys they soon replaced all other breeds. The aboriginal peoples and their domestic animals

were driven up into the mountains. During the centuries, these peoples were absorbed by the Serbs and no trace of them remains. Their cattle, on the other hand, have persisted, and these small, short-legged, hardy cattle of gray, brown, black, or tawny color are still found under various local names¹⁰ in the hill regions of Serbia, Macedonia, Bosnia, Herzegovina, Montenegro, and Dalmatia. These aboriginal cattle are of the type *Bos taurus europaeus*, similar to the mountain cattle of Rumania, Czechoslovakia, and Poland, whereas the native peasant valley cattle are of the primitive type similar to the medium-horned gray steppe cattle of western Russia, the long-horned gray steppe cattle brought by the Magyars from the south Volga regions of western Asia, or the short-horned gray steppe cattle introduced into Italy by the early Roman emperors and found to-day in Italy and the eastern coast lands of the Adriatic. All of these breeds originated in Asia and belong to the group of *Bos taurus primigenius*. (Table 112.)

TABLE 112.—Cattle: Important native and foreign breeds in Yugoslavia

Type and breed of cattle	Habitat	Utilization
<i>Bos taurus primigenius</i> :		
Steep cattle—		
Long horned.....	North Bosnia, Croatia, Slavonia, and Voivodina.	Draft, milk production poor. Quality of meat indifferent.
Medium-horned (Podolian).	Central Bosnia and Serbia.	
Short-horned.....	West Croatia, Dalmatia, and Slovenia.	
Alpine cattle—Simmenthal.....	Croatia, Slavonia, Voivodina, and a few in Serbia.	Meat, milk, and draft.
Alpine mixed—Mariahof.....	Slovenia.....	Do.
<i>Bos taurus europaeus</i> :		
Short horned—		
Ilirian brown.....	Middle and south Bosnia, Herzegovina, Montenegro, Serbian Mountains.	Small light-draft animals, in-different milk and meat production.
Ilirian black.....	Bosnia.....	
Ilirian spotted.....	Middle Bosnia and Herzegovina.....	
Ilirian blonde.....	Northwest Bosnia.....	
Dalmatian (ancient Roman)	Dalmatia.....	Demonstrated stock (cows weigh 330 to 420 pounds).
Mixed with <i>primigenius</i> gray and various colors—mountain.	Serbia.....	Fair production of rich milk.
Gray brown Alpine—Mürztal.	Slovenia.....	Milk and draft.
Short-faced—Möbital.....	do.....	Milk, meat, and draft.

1 Mixed with ancient Roman breeds; no constant type.

As early as 1902 the Government of the old Kingdom of Serbia introduced the Simmenthal, Mariahof, Mürztal, Algau, and Montafon breeds from Austria for crossing on native stock, but this breeding project had not been carried very far so that at the outbreak of the Balkan War the breeds and quality of cattle in old Serbia were about the same as they had been for hundreds of years.

On the other hand, the cattle north of the Danube and the Sava Rivers had been bred for some decades to meet the specialized requirements of field work, of the dairy, and, to a lesser extent, of meat production. This breeding work had been stimulated by the former Hungarian and Austrian Governments, which had, before the World War, introduced the Simmenthal, Algau, Pinzgau, Montafon, English, Dutch, and Hungarian breeds into the southern districts.

The Croats, Slavonians, and Slovenes, like the Serbs had brought with them into the regions they occupied the gray steppe cattle from

10 Kolubara, Maljen, Jasenica, Renava, Bosnia, etc.

Scythia (Russia). In Croatia and Slavonia in 1911, however, only 14.3 per cent of the cattle were of the aboriginal gray breed, having been replaced by Swiss (55.3 per cent of total numbers) and other breeds. In Voivodina conditions were similar, 39.1 per cent of all cattle being unimproved gray steppe breeds, 52.1 per cent Swiss, and 8.8 per cent other breeds, including 0.4 per cent buffaloes. The native gray cattle in Slovenia had practically been replaced by milk breeds—the Mölltal milk breed for highland conditions and the general-purpose Mürztal and Mariahof breeds for the lowlands.

In these northern Districts dairying was an industry of growing importance, but almost everywhere throughout Yugoslavia cattle are bred almost exclusively as work animals. Most of the traction work of the farms is accomplished by bulls, steers, or cows, yoked indiscriminately together. The cattle of Yugoslavia, after being worked a few seasons in the fields, are either slaughtered or are exported to the slaughtering centers of surrounding countries.

Although the ravages of war greatly depleted the herds in Yugoslavia, the post-war recovery was rapid, so that by 1921 cattle numbers as indicated in Table 113, had increased to 98.1 per cent of the pre-war normal.

TABLE 113.—Cattle, including buffaloes: Number in Yugoslavia, pre-war period, and 1921–1926

District and year	Cattle		
	Total	Per 1,000 acres	Per 1,000 population
Pre-war period:			
1910			
Old Kingdom of Serbia.....	Number 1,994,355	Number 89.4	Number 331.2
Ceded by Bulgaria.....	28,336	54.4	361.3
South Serbia.....	1,013,076	54.4	399.3
Montenegro.....	82,063	34.4	344.3
Bosnia-Herzegovina.....	1,300,922	103.5	678.1
Dalmatia.....	192,733	29.5	146.8
1910–11			
Croatia, Slavonia, Međimurje, Kik, and Kastav	1,171,387	108.2	428.8
Slovenia and Prekmurje.....	460,883	115.2	433.3
1911–Voivodina.....	385,365	79.2	284.9
Total.....	5,108,110	83.1	405.4
Post-war period:			
1921.....	5,011,000	81.5	417.0
1922.....	4,090,000	66.5	319.9
1923.....	3,902,000	63.5	316.4
1924.....	3,813,000	62.0	305.2
1925.....	3,736,000	61.8	300.1
1926.....	3,900,000	63.5	304.5

¹ Same as notes 1 to 9 in Table 111.

² For work animals only (17, 1925–26).

³ Estimate for cattle only from supplementary report of Consul S. E. McMillan, Mar. 28, 1927.

This high level in cattle numbers was reached by encouraging the free interchange of stock within the country. Exportation was prohibited. Slaughter of young stock was forbidden and restrictions were placed upon the slaughter of full-grown stock. In addition, livestock was demanded from Germany, Hungary, and Bulgaria in payment of reparations. Government breeding stables were established and as far as possible the animals received from enemy countries were employed for breeding and replacement.

In 1922, the numbers of cattle reported in Yugoslavia showed a decrease of 911,000 below the enumeration of 1921. This is chiefly because the 1922 figure pertains only to cattle employed as draft animals and does not include bulls and cows employed for reproduction, dairy cows, calves, or young stock. Exportation of cattle was permitted in 1920 and beginning with the year 1921 more than 100,000 cattle have been sent abroad each year. The numbers of cattle employed as work animals have fluctuated somewhat until 1926, in which year they were reported at 3,900,000 as compared with 4,090,000 in 1922. The numbers of total cattle greatly exceed those employed in farm work.

It is probable that in 1926 the combined number of all classes of cattle in Yugoslavia was equal to or exceeded the pre-war estimated number given in Table 113.

INTERNATIONAL TRADE IN CATTLE

During 1911, the last normal year before the Balkan War, the old Kingdom of Serbia exported 17,788 head of cattle to Italy and Malta, as well as 358 head to Bulgaria. During the 4-year period ended 1912, Bosnia-Herzegovina, although importing cattle probably into the western deficit regions, exported from the northeastern surplus regions. The result was an average net export of 63,110 head annually. The "southlands" of the former Austrian Empire, including Dalmatia and most of Slovenia, shipped an average of only 53 cattle to Vienna⁴ during 1909–1913.

There is no separate record of shipments of animals from Croatia-Slavonia or Voivodina, but it is probable that a very considerable portion of the 317,370 cattle exported annually from the former Kingdom of Hungary during 1909–1913 originated in these southern Districts.

Since 1921, as indicated in Table 114, the exportation of cattle from Yugoslavia has ranged between 105,385 (1922) and 206,513 (1923), the 1926 shipments abroad being 126,877.

TABLE 114.—Cattle: Exports and average export price in Yugoslavia, 1920–1926

Year	Total export		Average export price per head	Year	Total export		Average export price per head
	Number	Dinars			Number	Dinars	
1920.....	1,445	2,645	90.58	1924.....	168,100	4,450	56.40
1921.....	108,214	2,176	47.10	1925.....	111,352	5,762	64.38
1922.....	105,385	3,167	42.34	1926.....	126,877	2,800	49.47
1923.....	206,513	4,112	43.88				

Exports, 1920–1924 and 1926, and average export prices, 1920–1926, from supplementary report of Consul S. E. McMillan, dated Mar. 28, 1927.

Exports 1925, from annual report on commerce and industries for 1926 of S. E. McMillan, Mar. 28, 1927.

¹ See Table 99 for number of dinars per United States dollar.

During the first six months of 1927, 73,806 mature cattle and calves were sent to foreign countries, as compared with 51,572 during the similar period of the previous year.

Toward the end of July it became apparent that most of the pastures in the country had been scorched by the sun so the peasants were obliged to begin feeding the hay that they had stacked for winter use. This is reported to have been followed by heavy marketing of livestock.

⁴ There are no records of other shipments.

The frequency of droughts in the lower Danube countries—Yugoslavia, Bulgaria, and Rumania—is the great drawback to the expansion of the cattle industry in this region.

MEAT AND MEAT PRODUCTS

During the past century it had been the custom for agents of foreign buyers to canvass the market centers of the old Kingdom of Serbia and to concentrate exportable quantities of such products as were in demand in their home countries. It was not customary for Serbian individuals or organizations to seek markets in foreign lands. This was also the case to a more intensified degree in Bosnia-Herzegovina and in Croatia-Slavonia. There were no facilities for shipping fresh meat in summer. In winter, export of uncured meats was possible, but it was difficult for Serbians to engage in such a restricted seasonal trade.

For these reasons the custom arose of shipping live animals to the large slaughtering centers—Vienna, Prague, Budapest, Italian points, Istanbul (Constantinople), and through Salonika to various destinations in the Orient. The shipments of animal products were confined almost exclusively to cured meats until a few years before the World War, when facilities were perfected to ship carcasses from Belgrade to Budapest and from Bosnia to Vienna.

From the viewpoint of prime beef production, the quality of the cattle marketed from the Districts south of the Danube and the Sava was very low. Bosnia-Herzegovina exported an average of 5,232 head of cattle to the Vienna market during 1909-1913, of which only 110 were classified as prime animals.

North of the Danube and the Sava, conditions were far different. Cattle and swine were stall-fed on corn in Voivodina and in Croatia-Slavonia in much the same manner as in the Corn Belt of the United States.

During 1911, the last normal year before the Balkan War, the old Kingdom of Serbia exported 13,757,648 pounds of fresh beef to Austria-Hungary. There are no separate records of beef shipments from Yugoslavia since the World War.

DAIRYING

The milk industry was one of the least-developed and most-backward branches of agriculture in old Serbia, south Serbia, Bosnia, Herzegovina, Montenegro, Dalmatia, and Slovenia. In most of these Districts cattle were bred almost exclusively as work animals; meat production was of secondary importance. Cows were seldom milked on peasant farms and the calves were allowed to run with their mothers. It was the common practice to yoke cows with steers or bulls as draft animals, as a mare would be harnessed in a team of horses.

In the vicinity of Belgrade and other cities a few cows which more nearly approached the dairy types were kept to supply liquid milk to the hotels and the families of the upper classes, but these establishments were very primitive. They also furnished a portion of the butter, cream, and cheese requirements of these cities, but Belgrade and other large cities had to depend upon the former southern Hungarian Districts of Croatia, Slavonia, and Voivodina for much of their supply of dairy products.

In Croatia, Slavonia, and Voivodina dairy herds have been developed with the mottled Triburg, Simmenthal, and gray cattle from

Switzerland. More than half of the cattle in these Districts are improved dairy stock. The dairy industry of Yugoslavia is now not only able to supply the requirements of the Kingdom itself, but produces a considerable surplus for export.

During 1923, 1924, and 1925, the exports of butter were 273 short tons, 308 short tons, and 170 short tons respectively. The cheese exports were respectively: 1,206 short tons, 525 short tons, and 177 short tons.

SWINE

It is not impossible that the migrating Slavs brought swine with them into the Balkans. It is certain that they found various native races in the land when they arrived. One of these races was the black, long-legged, arched-back Roman hog that is found to-day in the coast lands and islands of Dalmatia. The Serbs early developed local breeds of swine which were superior to those in the neighboring countries to the north. The most common type of hog thus developed was the progenitor of the present Schumadija (Sumadia) breed, called after the District of that name. These swine are long and rangy but are resistant to inclement conditions and to disease. There is a similar breed of native swine called Moravia.

Prince Milos of Topeschider, who was a swine breeder of wide vision, perceived the immense profit that would accrue to Serbia through the sale of hogs in Hungary and Austria and sent agents to the north with great droves of the swine that he had developed, called Schumadija-Mongolica (Angolica, Mangolica). These hogs were also driven great distances on foot to be marketed in Styria, Austria, and in Bavaria, Germany. At first there was a large sale of superior Serbian hogs in central Europe but early in the nineteenth century the Hungarians began themselves to breed Mangolica swine.⁸⁵

The territories that constitute the present State of Hungary, in the vicinity of Budapest and west to the Austrian frontier, were engaged chiefly in producing meat and milk for the Vienna market. The peasants in this region did not breed all the animals they fed nor grow all the feed required for fattening stock. Cattle and swine, corn and other feeding stuffs, were shipped in from outlying Provinces of the old Kingdom of Hungary and from adjacent countries including Serbia.

As early as 1870, Serbia sent 216,160 lean hogs to the commercial feeding establishment at Kőbánya near Budapest. During succeeding years numbers fluctuated somewhat but reached a maximum in 1893 when 250,570 were sent.

However, competition from provincial Hungary had grown stronger and in 1893, Kőbánya received 624,288 hogs from outlying Hungarian districts. During the 5-year period ended 1905, Serbia exported an average of 129,390 hogs to Hungary each year.

In 1906 the Austro-Hungarian agricultural protective tariff went into effect and in August of that year, shipments of swine from Serbia abruptly ceased. The bitter feeling engendered in the Serbs at this time, on being shut out of the markets of the Hapsburg Empire, is said to have led to the events that precipitated the World War, which in the Balkans, is often spoken of as "the war of the Serbian hog."

⁸⁵ By 1911 this improved Serbian breed had so replaced native strains in the territories now constituting residual Hungary that more than 90 per cent of all hogs were Mangolice.

By 1911 the exportation of hogs (live and slaughtered) from Serbia had dwindled to a few thousand; only 8,649 animals were sent abroad in that year to Bulgaria and Rumania.

The hog situation and the potentialities of pork production in Yugoslavia are important to American farmers because this region, as well as northwestern Rumania (the Banat and Crisana), may develop keen competition with American lard, pork, and pork products in the markets of central Europe.

Just preceding the World War more than 60 per cent of the swine in the territories now comprising Yugoslavia were found north of the Danube and the Sava. These swine were almost exclusively Mongolias or the fat type of hog, although some English and German improved breeds were found, particularly in Slovenia.

About 22 per cent of the pre-war numbers of swine were found in the old Kingdom of Serbia and 13 per cent of Bosnia and Herzegovina.

In the mountain regions south of the Sava River, the swine are more of the razorback unimproved type. The improved native types are coarse and fat—better adapted to the production of lard and fat salt side pork than of bacon comparable with the Danish product representing the European standard of excellence. Nevertheless, hogs that are grazed in the oak and beech forests feeding upon acorns and nuts, develop a highly flavored flesh that has created a demand for Serbian hams in certain European cities.

In recent years, considerable numbers of Yorkshires and Berkshires had been introduced for building up native breeds, but their influence had not, as yet, become commercially important at the outbreak of the Balkan war.

According to the enumerations taken in Hungary in 1911 and other territories in 1910, there were, before the World War, about 3,924,984 swine in the territories now comprising Yugoslavia. As indicated in Table 115, swine numbers had recovered to 85.9 per cent of the pre-war normal by 1921.

TABLE 115.—Hogs: Number in Yugoslavia, pre-war period, and 1921–1926

District and year	Hogs		
	Total	Per 1,000 acres	Per 1,000 population
Pre-war period:			
1910			
Old Kingdom of Serbia	Number	Number	Number
Ceded by Bulgaria	1,865,789	71.5	319.3
South Serbia	216,579		229.0
Montenegro	178,707	7.0	47.3
Bosnia-Herzegovina	110,542	4.4	44.2
Dalmatia	1,827,271	41.7	272.9
1910–11			
Croatia, Slavonia, Međimurje, Krk, and Kastav	41,109,565	110.8	430.1
Slovenia and Frekmurje	7,447,111	111.7	420.3
1911–Voivodina	7,717,991	147.5	530.7
Total	3,924,984	63.8	311.5
Post-war period:			
1921	3,373,000	54.9	280.7
1922	2,887,000	47.0	237.1
1923	2,497,000	40.6	202.4
1924	2,518,000	41.0	201.6
1925	2,802,000	45.6	221.5
1926	3,000,000	48.9	234.2

* Same as notes 1 to 9 in Table 111.

† For swine found only on farms (17, 1925–26).

‡ Estimate from supplementary report of Consul Stewart E. McMillan, dated Mar. 28, 1927.

The production of pork in Yugoslavia since the World War, has been hampered by export taxes on hogs, lard, and pork products, levied with the view not only of yielding revenue to the State but also of keeping down the cost of living in the cities. The short corn crops of 1921 to 1923 made feeding very expensive and swine numbers and exports decreased as Yugoslavian farmers could not pay the tax and compete in the markets of Budapest, Vienna, and Prague with the more favorably situated farmers in other States.

Swine numbers in 1924 had recovered somewhat from the low level reached in 1923 but there was an exportation of only 86,183 hogs and 147,512 pounds of lard from the eastern Districts. On the other hand the western Districts imported from the United States and other countries 22,287,316 pounds of animal fats. This foreign competition, brought to the very doors of the home markets of the Yugoslavian farmer, induced the Government to place high import duties on hog fats effective June 30, 1925, and on November 29 of that year all export duties on live hogs were abolished by a decree of the Government. Nevertheless, local markets remained stagnant and during that year only 70,266 hogs were shipped up the Danube.

Bumper crops of corn were raised during 1924 and 1925 and (although during the latter year more than twice as much corn was sent abroad as the average exported during 1909–1913) at the same time domestic disappearance was greater than before the World War. By 1925, swine numbers had increased to 2,802,000 and the following year although, 297,870 hogs were exported (Table 116), swine numbers increased to about 3,000,000 according to a preliminary estimate.

TABLE 116.—Hogs: Exports and average export price in Yugoslavia, 1920–1926

Year	Total export	Average export price per head		Year	Total export	Average export price per head	
	Number	Dinars	Dollars ¹		Number	Dinars	Dollars ¹
1920	22,194	1,210	41.44	1924	86,183	3,147	39.89
1921	219,251	953	30.63	1925	70,266	1,758	29.85
1922	2,000	28.74		1926	297,870	1,140	20.14
1923	140,441	3,190	34.04				

From supplementary report of Stewart E. McMillan, dated Mar. 28, 1927.

¹ See Table 99 for number of dinars per United States dollar.

The corn crop of 1926 was somewhat lighter than that of the previous year but was still 18,000,000 bushels greater than the pre-war average net production. Greater numbers of swine were put on feed than in the winter of 1925–26 so that, during the first six months of 1927, 179,602 hogs were exported as compared with 80,153 during the similar period of the year before. The corn exported abroad during this period was only 25.8 per cent of that exported during the first 6 months of 1926.

The corn belt of Yugoslavia can produce large numbers of hogs when the weather conditions are favorable to the crop and it is probable that the future trend of farming in the northeast districts of the Kingdom of Yugoslavia will be toward increased feeding of corn to hogs and the exportation of live animals and pork products rather than toward the shipment of corn as grain to rival pork-producing countries to the north.

INTERNATIONAL TRADE IN PORK AND PORK PRODUCTS

The blow given to the live-hog export trade of the old Kingdom of Serbia by the Austro-Hungarian tariff of 1906 acted as a stimulus to the pork-packing industry to such an extent that in 1911 pork exports to Budapest and Italy reached 19,451,911 pounds. Shipments of small pigs to France and Italy reached 565,273 pounds, and 50,018 pounds of cured hams and shoulders went to Italy, Turkey, Bulgaria and Switzerland.

Exports of lard to Germany, Austria-Hungary, and Switzerland reached 2,838,868 pounds.

During the 4-year period ended 1912, Bosnia-Herzegovina shipped an average of 31,258 carcasses and 14,158 live hogs to northern points.

In 1914, Croatia-Slavonia shipped 119,272 hogs and Slovenia 14,895 hogs to Vienna.

Since 1924, exports of meat (probably pork) have increased to 47,408,990 pounds in 1926. As shown in Table 117, Yugoslavia exported 2,420,697 pounds of meat products and 2,858,769 pounds of pork lard in that year.

Although the eastern Districts of Yugoslavia have exported increasing quantities of lard since 1924, these exports have been more than offset by imports of animal fats into the western deficit Districts. These importations were 22,287,000 pounds in 1924, 10,624,000 pounds in 1925, and 8,653,000 pounds in 1926.

TABLE 117.—*Meat and meat products: Exports from Yugoslavia, 1923-1926*

Item	1922	1923	1924	1925	1926
	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Meat.....	47,576,326	48,638,297	37,881,957	26,419,657	47,408,990
Meat products.....			4,437,900	2,890,844	2,420,697
Pork lard.....	(1)	645,637	147,512	177,050	2,858,769

Compiled from reports of Consul K. S. Patton, Aug. 16, 1924, and Mar. 30, 1925, and from report of Consul Stewart E. McMillan, Mar. 28, 1927.

¹ Not separately stated.

Pork is the chief meat ration of the peasants of Yugoslavia. Among the Slavs, as among the Bulgarian and Rumanian peasants, it is customary to have a roast pig at Christmas time, whereas pork (fresh and cured) with baby lamb (4 to 5 days old) and mutton constitute almost exclusively the meat diet of the peasant, who seldom if ever eats beef or veal. Although the peasants of Yugoslavia eat a considerable portion of the pork they produce, the country as a whole is a corn country in which large quantities of hog feed can be produced cheaply. It is probable that with the development of the economic status of Yugoslavia this country will become an active competitor, together with Hungary and to a less extent with Rumania, against the United States for the pork and lard trade of central Europe.

The great drawbacks to swine production are the uncertainty of the corn crop and the prevalence to contagious diseases on account of poor sanitation and the general ignorance of the peasants concerning infection.

SHEEP

The migrating Serbs brought with them their flocks of sheep on which they subsisted in their wanderings across the plains of present-day Hungary. These sheep were of the coarse-wool, milk-producing types, and to this day the Yugoslavs have depended upon their sheep for milk, cheese, and meat, as well as for wool from which to spin and weave their coarse garments. The skins are soft tanned, with the long hair left on, and every peasant has a greatcoat made from such skins with the hair inside. The pelts of lambs, black, with the hair tightly curled, are used to make the native cap universally worn by the peasants.

Whereas more than 60 per cent of the swine are found in the three northern Districts of Yugoslavia, fully 85 per cent of the sheep are found south of the Danube and the Sava.

There are several breeds of these ancient types of sheep: The Krivovir and the Kraljevo breeds are prized for their meat and milk, whereas the breeds raised primarily for their wool are the Piro, Vlaski, Ovce-Polje (Polish), Bosnian, Raczka, and Czigaja.

The Government has imported Oxfordshires, Hampshire, Merinos, and Karakuls to improve local breeds.

South of the Danube, the sheep are almost exclusively of the native unimproved varieties. The same conditions hold true in Croatia-Slavonia where in 1911 only 3.9 per cent of the sheep were Merinos and 1.9 per cent English and other types; whereas 94.2 per cent were Czigajas and Raczka (a breed brought from the south Volga regions in Russia by the Hungarians in the tenth century). Conditions are somewhat better in Voivodina where there were 17.1 per cent of Merinos, 4.8 per cent of English and other types, and 78.1 per cent unimproved native breeds.

South of the Danube and the Sava, the sheep belonging to the peasants of a village are assembled into one flock and sent out to pasture upon the neighboring mountain slopes in charge of a single shepherd. When warm weather comes they are sheared and returned to pasture until cold weather. In the fall a number are retained for reproduction purposes and the remainder are slaughtered. The custom of killing the sheep in the fall was developed to save the expense of feeding during the winter months.

The ravages of war greatly depleted the numbers of sheep in the territories now comprising the Kingdom of Yugoslavia. By 1921 the flocks had recovered to only 66.8 per cent of the pre-war average found on farms of Yugoslavia. (Table 118.)

The winter carry-over of sheep in Yugoslavia, which has fluctuated somewhat in recent years, has exhibited a tendency to increase since 1923 reaching 7,907,000 in 1925, as compared with 7,011,000 in 1921 and 10,499,000 before the World War.

In 1911 the old Kingdom of Serbia shipped 61,998 sheep and 11,990 goats to Turkey and Greece and 4,380 lambs to Turkey. During 1909-1912 Bosnia-Herzegovina exported (net) annually an average of 96,948 sheep and goats.

There are no data on shipments of sheep from the other districts now comprising Yugoslavia.

In 1923 and 1924, nearly 400,000 sheep and goats were sent abroad. In 1925, this number was swelled to 504,383 and in 1926 was further

increased to 587,944. Most of the sheep exported from Yugoslavia are shipped to the Orient through the port of Salonika.

TABLE 118.—*Sheep: Number in Yugoslavia, pre-war period, and 1921-1925, with exports for 1921-1926*

District and year	Sheep			Exports
	Total	Per 1,000 acres	Per 1,000 of the population	
Pre-war period:	Number	Number	Number	Number
1910—				
Old Kingdom of Serbia.....	13,818,997	321.3	1,311.6	
Ceded by Bulgaria.....	1146,874		2,028.3	
South Serbia.....	1,374,555	122.1	835.7	
Montenegro.....	228,576	99.9	1,040.0	
Bosnia-Herzegovina.....	2,409,422	197.6	1,293.8	
Dalmatia.....	874,260	278.0	1,384.2	
1910-11—				
Croatia, Slavonia, Medjmurje, Krk, and Kastav.....	878,052	81.1	321.4	
Slovenia and Prekmurje.....	611,412	15.3	67.7	
1911—Vojvodina.....	607,139	124.7	448.8	
Total.....	10,499,297	170.8	833.3	
Post-war period:				
1921.....	7,011,000	114.0	583.4	135,068
1922.....	8,462,000	137.6	685.0	157,818
1923.....	7,639,000	124.3	619.3	187,432
1924.....	7,619,000	123.9	609.9	187,020
1925.....	7,907,000	128.8	625.1	194,383
1926.....				187,344

1-10 Same as notes 1 to 10 in Table 111.

11 (17, 1925-26).

12 Includes goats; compiled from reports of Consul K. S. Patton, dated Aug. 18, 1924.

13 Includes goats; compiled from reports of Consul K. S. Patton, dated Mar. 30, 1925.

14 Includes goats; compiled from report of Consul Stewart E. McMillan, dated Mar. 28, 1927.

Wool

After the wool is clipped in Yugoslavia, it is customary to wash it superficially and sell to some dealer in the next neighboring market, who in turn sells it to a merchant in a larger adjoining town. In this manner, after passing through the hands of five or six dealers, the wool was concentrated in the more important centers and passed into the hands of the manufacturers and (before the World War) of the exporters. Practically all the wool exported from Yugoslavian territory before the World War went to Bohemia and Vienna, whose merchants maintained traveling agents to buy up the wool in small lots dealing directly with the producers or one of the smaller buyers.

There are no official statistics on wool production. According to the officials of the Ministry of Agriculture the sheep in the Kingdom were classified as follows in 1923:⁸⁶

	Number
Breeding ewes.....	4,782,764
Breeding rams.....	331,069
Other mature sheep.....	730,484
Total mature sheep.....	5,844,317
Lambs under 1 year.....	1,744,940
Total.....	7,639,257

⁸⁶ From report of Consul H. S. Bursley dated June 26, 1925. In the report, Consul Bursley refers to these data as of the year 1924. The total is that of sheep numbers in 1923.

The sheep over one year of age yield on the average 4.4 pounds of wool each per year. Sixty per cent of the lambs yield an average annual cut of 1.7 pounds each. The remainder of the lambs are used as food before reaching the wool-bearing age.⁸⁷

In 1923, the wool clip of this country may be considered to have been: From mature sheep 25,989,000 pounds, from lambs 1,731,000 pounds, totaling 27,720,000 pounds.

The exportation of wool was prohibited in 1921, and there are no records of imports.

TABLE 119.—*Goats, mules and donkeys: Number in Yugoslavia, pre-war period, and 1921-1925*

District and year	Goats	Mules	Donkeys
Pre-war period:	Number	Number	Number
1910—			
Old Kingdom of Serbia ¹	630,579	611	1,011
Ceded by Bulgaria ²	28,739	56	380
South Serbia.....	430,246	6,623	55,628
Montenegro ³	75,515	1,230	5,810
Bosnia-Herzegovina ⁴	1,363,968	473	6,377
Dalmatia ⁵	249,033	14,081	27,618
1910-11—			
Croatia, Slavonia, Medjmurje, Krk, and Kastav ⁶	96,366	1,010	3,650
Slovenia and Prekmurje ⁷	15,323	55	313
1911—Vojvodina ⁸	1,558	44	1,418
Total.....	2,920,427	24,183	100,105
Postwar period:			
1921.....	1,553,000	18,000	84,000
1922 (17, 1925-26).....	1,801,000	15,000	86,000
1923 (17, 1925-26).....	1,730,000	15,000	88,000
1924 (17, 1925-26).....	1,718,000	15,000	90,000
1925 (17, 1925-26).....	1,811,000	15,000	95,000

After 1921 donkeys represent farm animals only.

1-8 Same as notes 1 to 8 in Table 111.

CONCLUSIONS REGARDING YUGOSLAVIAN AGRICULTURE

Yugoslavia is a conglomerate of territorial units whose inhabitants, though related by blood, exhibit different racial tendencies as regards their farm activities. The influence of these racial tendencies upon production has been modified by the physical characteristics of the various parts of the Kingdom. The northeastern part of Yugoslavia, lying in the valley of the Danube and its tributaries, is a region of large surplus production with easy access to cheap water transportation up the Danube to central Europe and down the river to the Black Sea ports and thence to western Europe. The western, southern, and southwestern parts of the country produce little if any exportable surpluses and, as a rule, require additional cereals to supplement local production.

The exportation of all classes of farm products from the northeastern surplus districts is well organized whereas there are very poor means of interchanging goods between eastern and western parts of the Kingdom. Consequently, the western Districts have imported flour and animal fats from the United States at the same time that the eastern Districts have exported wheat, flour, hogs, and pork. This situation is bound to be temporary, and the deficit Districts have increased their wheat production in an attempt to be more nearly independent of outside sources of supply.

⁸⁷ These lambs do not include the baby lambs killed at 5 to 10 days of age for their pelts.

The greater part of Yugoslavia was not affected by the land reform. The agriculture of the whole region south of the Danube and Sava Rivers is similar to that of Bulgaria—that is, an agriculture designed to satisfy home wants. On farms of 173 acres or less, from 59 to 89 per cent of all products are consumed at home. The farms in this part of the Kingdom were small even before the World War. There were many large estates north of the Danube and the Sava, and in this region, as in Rumania, the land reform was followed by increased corn production. Increases in corn in the north and of wheat in the south and west have brought the acreages of both of these cereals above the pre-war level. The tendency has been to cultivate smaller acreages of rye, barley, and oats than before the World War.

The net exportation of wheat from the territories now comprising Yugoslavia has tended to be lower than before the World War. There appears to be a trend toward increased wheat disappearance though it is not as positive as in Rumania. In recent years, until the season of 1927-28, corn exports have been marked features of the international trade of Yugoslavia as have been the shipments of hogs, pork, and pork products up the Danube River to Budapest, Vienna, and points north.

The whole south Danube corn belt is a region of potential corn and hog production that may develop into proportions of considerable magnitude and seriously affect the sale of United States pork and pork products in central Europe. But the peasant farmers of this whole region are ignorant of sanitation and large numbers of swine succumb to disease. The region is also subject to droughts which, as in 1927, may decrease the corn crop and force the premature marketing of hogs. Nevertheless, there are large possibilities for the expansion of the swine industry in Yugoslavia.

A well-developed sugar industry in Yugoslavia is at present suffering from maladjustments between factories and growers. Eventually, these differences will be adjusted and the Kingdom of Yugoslavia will ship considerable quantities of sugar to Italy and the Orient.

The tobacco industry of Yugoslavia passed through an expansion period similar to that in Bulgaria, but at the time of closing this report both acreage and production have been reduced somewhat below the pre-war level. The country produces sufficient tobacco for its own use and usually has a surplus for export.

Yugoslavia is a surplus-producing country in regard to most agricultural products. The interest of the United States centers on the possibilities of this Kingdom as a competitor in pork and pork products.

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